T.J. Mahoney

Mercury

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ISBN 978-1-4614-7207-0 ISBN 978-1-4614-7951-2 (eBook)
DOI 10.1007/978-1-4614-7951-2
Springer New York Heidelberg Dordrecht London

Library of Congress Control Number: 2013939728

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

A COMPENDIUM OF THE ASTRONOMICAL LEXICON

T. J. MAHONEY, *Editor-in-Chief*

PART A: GAZETTEER AND ATLAS OF ASTRONOMY

(IN SEVEN VOLUMES)

VOLUME I: THE TERRESTRIAL PLANETS

- Part 1: Mercury
- Part 2: Venus
- Part 3: The Martian System

VOLUME II: THE EARTH–MOON SYSTEM

VOLUME III: THE GAS GIANT SYSTEMS

- Part 1: The Jovian System
- Part 2: The Saturnian System
- Part 3: The Uranian System
- Part 4: The Neptunian System

VOLUME IV: ASTEROIDS AND METEORITES

VOLUME V: TRANS-NEPTUNIAN AND RELATED OBJECTS

- Part 1: Kuiper Belt Objects
- Part 2: Comets and Meteoroid Streams

VOLUME VI: STARS, NEBULAE AND GALAXIES

VOLUME VII: COMBINED GAZETTEER AND ATLAS OF ASTRONOMY

PART B: DICTIONARY OF ASTRONOMICAL TERMINOLOGY

Advisory Board

EDITORIAL BOARD

Contents

List of Maps

Foreword

One month ago today, I was in the Situation Room at The Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. It was 8:45 EDT, the time that the *MESSENGER* spacecraft was scheduled to fire its main propulsion system to begin its insertion into orbit about Mercury.

The maneuver was critical to the mission. An aborted or substantially incomplete burn would mean that achieving orbit around Mercury would, at best, be delayed by several years. At worst, the *MESSENGER* mission could be over, more than six and a half years after launch, before any orbital observations were made.

Because of Mercury's distance from Earth, signals sent by *MESSENGER* took about 9 min to arrive. So the soonest we could verify that the insertion burn had started on time was 8:54 EDT. Moreover, because of the orientation of the spacecraft during its burn, most of *MESSENGER*'s antennas could not be used to monitor the maneuver, and data could be downlinked only at a very low rate. The principal source of information would be the Doppler shift in the radio transmission frequency that would denote a change in the probe's velocity.

About 24 ft long by 20 ft in width, the Situation Room held about 30 chairs and a long table in the center of the floor. One of the two longer walls with four interior windows separated the room from the *MESSENGER* Mission Operations Center, where members of the mission operations staff focused on their computer screens. Over the row of windows, a large LED display read out Coordinated Universal Time to the nearest second. A 1:5 scale model of the *MESSENGER* spacecraft filled one of the Situation Room's corners.

NASA Administrator Charles Bolden had just left the room after chatting with *MESSENGER* team members about the goals and challenges of the mission. My immediate colleagues in the room at that point were members of *MESSENGER*'s Geophysics Discipline Group, including Maria Zuber and Dave Smith from MIT, Roger Phillips from the

Southwest Research Institute, and Stan Peale from the University of California, Santa Barbara. All were expert in the interpretation of spacecraft Doppler observations.

On a large screen hanging in front of one of the room's shorter walls was a projection of a graph showing, as a green line, the Doppler signal versus ground time predicted for a fully successful orbit insertion maneuver. The green line had two major changes in slope, one at the start of the burn at 8:54 EDT and a second at the end of the burn 15 min later. A second line, showing in red the actual Doppler signal received, extended slowly across the graph as time progressed. At 8:54 EDT, the red line changed slope to match that of the green line. The burn had begun on time.

Right on schedule, the red line changed slope again 15 min later to match the plot in green. The burn had run to completion and halted as expected. Next door, the mission operations staff jumped from their chairs with cheers, and a wave of vigorous handshakes spread across the room. Equally excited, my geophysicist colleagues marveled at the precision of the maneuver. *MESSENGER* was in orbit about Mercury.

It is particularly timely, with the first spacecraft now in orbit about the innermost planet, to assemble what has been learned about the planet Mercury over the millennia, from the astronomers of the first major civilizations to the spacecraft encounters by *Mariner 10* and *MESSENGER*. This gazetteer, the first part of a more ambitious and comprehensive *Gazetteer and Atlas of Astronomy*, provides such a compendium, and one with admirable thoroughness.

As *MESSENGER* begins the nearly continuous observations that will build toward the first systematic global view of Mercury, the information in this volume will provide essential context and background. Nonetheless, as with all such efforts to provide a comprehensive summary of current knowledge, this volume is destined to be superseded. It is a measure of the importance of the content of this gazetteer that the imperative to expand and update the information it contains can already be foreseen.

Washington, DC, USA — Sean C. Solomon
April, 2011

Preface to the Series

The purpose of this Gazetteer and Atlas of Astronomy (GAA) is to list, define and illustrate, for the first time, every named (as opposed to merely catalogued) object in the sky within a single reference work for use by the general reader, writers and editors dealing with astronomical themes, and those astronomers concerned with any aspect of astronomical nomenclature.

The GAA is part of a wider project that encompasses both the nomenclature and the terminology of astronomy. The project started out as a monolithic work organized alphanumerically; however, it soon became clear to us that the nomenclature part of the astronomical lexicon would be better separated from the terminological part because named celestial objects and surface features on planetary bodies far outnumber the technical terms used in astronomy. We estimate that the number of technical terms in the English astronomical lexicon (from the thirteenth century to the present day) amounts to somewhat less than 10 000, whereas the Moon and asteroids alone account for around 25 000 entries in the GAA. A nomenclature-to-terminology ratio of 4:1 would be a fairly conservative estimate for astronomy.

The naming of celestial objects is a vast subject, as befits the study of the largest object known to man—the Universe itself. All human culture, past and present, is represented here. Surface features of the explored planets and satellites are named not only after famous scientists, mathematicians, artists and writers, but also after gods, good and evil spirits, villages, towns, peoples and literary characters from the remote past to the present day. In astronomical nomenclature all the human psyche is projected onto the sky and the surfaces of celestial bodies. While astronomers must perforce be clinical and disinterested in the pursuance of their research, the effort and imagination that the astronomical community has expended in the past and continues to devote today to the naming of celestial bodies and

the features observed on them offer abundant proof, if such were needed, of the fundamental humanity of the scientific enterprise.

The conscious decision by the IAU to widen the cultural relevance and appeal of its nomenclature system has necessarily led astronomers into the hitherto unfamiliar realms of anthropology, linguistics and philology. The problems inherent in a nomenclature system so diverse and rooted in world culture and history, as is now the case for astronomy, necessitate a detailed description of how nomenclature works today and how it was conducted in the past (since much of present day nomenclature has been handed down to us from past times). Unmanned space probes to planets, satellites, asteroids and comets have in the past half century produced an explosion of new planetary nomenclature. While new names are allocated primarily as an aid to quick identification by researchers investigating given bodies and surface features, an undeniably important secondary aspect of astronomical nomenclature has always been the commemoration of individuals (real and mythical), objects, institutions, places, etc.

Since its inception in 1919, the International Astronomical Union (IAU) has been the sole internationally recognized authority in all decisions concerning astronomical nomenclature. The GAA lists every name given by the IAU. However, astronomical nomenclature reaches back to antiquity and many names—particularly those of stars, asterisms and constellations—have been in use for millenia. These too are covered in this gazetteer, as are popular names for certain stars and asterisms.[1]

It was decided to produce the GAA before the Dictionary of Astronomical Terminology (DOAT) because—even though there are at least four times as many names for celestial bodies and the surface features thereon, which would seem to imply four times as much work needing to be done—the allocation of names is a far less problematic and controversial affair than the definition of technical terms (as the controversy that raged around the redefinition of *planet* in 2006 amply demonstrated). Compiling a work of nomenclature on the scale of the present project largely resembles the painstaking toil of an archaeological dig, whereas writing a dictionary of terminology can occasionally seem like negotiating a minefield. The latter task requires more investigation and time than the former, and that is why the GAA precedes the DOAT. The GAA will be produced first of all in parts to cover various groups of celestial bodies separately and finally as an alphanumerically arranged single work. Each part of the GAA will be published as a self-contained unit comprising:

[1] The names sold to individuals and organizations by a growing number of commercial agencies, however, are not listed here since such names have no scientific or cultural currency. No correspondence will be entered into by either the editorial team or the publisher concerning any names sold by such agencies.

- An introduction to the nomenclature of the body or group of bodies in question
- A glossary of terminology used
- A gazetteer listing in strict alphanumerical sequence essential information defining the body or feature concerned
- An alphanumerically arranged classified index of all the headwords in the gazetteer
- An atlas comprising maps and images with coordinate grids and labels identifying features listed in the gazetteer
- Appendix material on the IAU nomenclature system and the transcription systems used for non-roman alphabets

An important feature of this gazetteer is the provision of pronunciations for all the names listed therein. We provide British and American pronunciations for the entries based on the broad phonetic principles of both systems. We have adapted non-anglophone sounds to the range of sounds familiar to anglophone readers on both sides of the Atlantic.

Another important feature of the gazetteer is the tracing of names to their languages and scripts of origin.[2] As already stated, modern astronomical nomenclature, in its commemoration of different civilizations, peoples and geographical locations, is a sincere attempt to acknowledge cultures worldwide. Culture, however, is a fragile and sometimes fractious entity; to prevent astronomical nomenclature from being seen solely 'through western eyes' and to make it truly representative of the world's cultures, the names of celestial bodies and their surface features must be firmly anchored in their languages (and scripts) of origin. Full transcriptions respecting the phonemic niceties of non-roman scripts are given to aid those readers unfamiliar with the script in question and to provide a sound phonemic base for allocated names.

We emphasize that it is not the purpose of this gazetteer to lay down the law regarding the 'proper' pronunciation and spelling of names; in the parlance of lexicographers, this gazetteer is descriptive rather than prescriptive. The pronunciations offered are therefore either the most common ones where a name has a high frequency of usage, or a best estimate based on the rules of British and American phonetics. In the same descriptive vein, the transcriptions of names originating in non-roman scripts in the etymologies are given purely as aids to the decipherment of the non-roman scripts and should not, where they deviate from the IAU-adopted spellings, be considered as 'more correct'. The IAU is the only body authorized to make any such decisions.

[2] In this volume, names deriving from Arabic, Ottoman Turkish, Persian, Hebrew, Russian, Ukrainian, Hindi, Sanskrit, Greek, Chinese, Japanese and Korean are traced to their original scripts.

Readers who detect errors concerning any aspect of the GAA are kindly requested to contact the publisher with their views, which will be taken into consideration during the preparation of future editions.

La Laguna, Tenerife, Spain T. J. Mahoney (Editor-in-Chief)
May 2012

Preface to Volume I, Part 1

When *Mariner 10* photographed the surface of Mercury during three flybys on 1974 March 29, 1974 September 21 and 1975 March 16, the scientific study of that planet was effectively handed over from telescopic observers to professional cartographers and planetary scientists. Although Antoniadi's fine pointillist map of the albedo features of Mercury was now replaced by high definition photographic images of crater-strewn and wrinkled terrain, now seen in vivid detail, the albedo features identified in this pre-*Mariner* map still survive in today's maps and nomenclature system for Mercury. Antoniadi's classically inspired Latinized Greek names, all thematically related to the mythical messenger god Hermes, now serve as a grid on which are scattered a profusion of impact craters ridges, scarps, mountains, wrinkles and "weird" terrain (this last found, so far, only on Mercury).

Today, the International Astronomical Union, through the Task Group for Mercury Nomenclature of the Working Group for Planetary System Nomenclature, has widened the scope of Antoniadi's original, purely classical, scheme. In keeping with IAU policy, all the world's cultures are now represented in planetary nomenclature. In the case of Mercury, the most distinctive surface features—the craters—are named after deceased artists, writers and musicians who have deeply influenced their respective fields. Significant works of architecture are represented in the names of long, narrow channels (*fossae*) that criss-cross the planet's surface. The word for 'hot' in various languages is used to label mountains, and the extensive low plains that are just barely discernible in the best terrestrial telescopes are given names equivalent to Hermes in various languages. Other types of distinctive surface features of Mercury (the *dorsa*, *rupēs* and *valles*) commemorate ships of discovery, radio observatories and deceased scientists who have contributed to the study of Mercury.

After its final flyby of Mercury on 2009 September 29, NASA's *MESSENGER* probe completed the preliminary mapping, begun by *Mariner 10*, of almost (97.72 %) of the entire surface of Mercury. The combined

Mariner 10 and *MESSENGER* databases were used to produce a near-global map of the planet's surface on the basis of a mosaic of images taken by the two probes. This global mosaic is limited in its cartographical accuracy by such factors as the variable resolution of the on-board cameras as the probes swept past Mercury on their various flybys, and the varying illumination of surface features during the various encounters. On 2011 March 18, *MESSENGER* was successfully inserted into orbit around Mercury in preparation for a definitive in-depth and repeated mapping of the Mercurian surface.

Names continue to be allocated to new surface features as they fall under the scrutiny of planetary scientists presently at work unlocking the jealously guarded secrets of this most perplexing of planets. This gazetteer gives a full conspectus of Mercurian nomenclature that is complete up to the time of writing (May, 2012). Now that *MESSENGER* has successfully begun its task of providing the definitive map of Mercury, many more new names will no doubt be added as the year progresses, and these will feature in future editions of the gazetteer.

La Laguna, Tenerife, Spain T. J. Mahoney
May 2012

Acknowledgements

A work of this nature requires the collaboration and selfless good will of a large number of people. I thank Sean Solomon, Principal Investigator of the *MESSENGER* mission, for giving generously of his time at a critical moment in what has turned out to be one of the most successful space missions ever. His stirring foreword and numerous corrections to the text helped greatly to improve this volume. Any remaining errors and omissions are to be laid squarely at my door.

By adding their names and prestige to the enterprise, as well as actively undertaking editorial tasks, the members of the Advisory and Editorial Boards have helped ensure the successful conclusion of this part of the project and, to all, my thanks. It is my sad duty to report the death of Editorial Board member John Peter Phillips, of the Instituto de Astronomía y Meteorología (University of Guadalajara, Mexico). Dr Phillips's contribution to the project was considerable and he will be greatly missed.

This project was commissioned by Harry Blom on behalf of Kluwer, which later became part of Springer. Harry has consistently given enthusiastic support and shown monumental patience throughout the years of development of the project into its present form. From Kluwer days, mention must be made of Itsco van der Linden, Oona Schmid and Sonja Japenga, all of whom helped shape the project in its early stages. Since Springer inherited the project from Kluwer, the work has at all times received the able editorial assistance of Jennifer Carlson, Lydia Müller and Jessica Fricchione. To each of them I owe a great debt of thanks. I am greatly beholden to Jennifer Satten, who has ably and patiently guided me through the complicated process of preparing the manuscript for production. I am especially grateful to her for allowing me to make 11th-h updates to the text.

The idea for this gazetteer was born at the 2002 international conference *Communicating Astronomy*, held in La Laguna (Tenerife, Spain) in February, 2002. The conference was hosted by the Instituto de Astrofísica de

Canarias (IAC), which has provided me with unstinting support in terms of office and computer facilities, and travel funds for researching this volume, and for other work related to astronomical lexicography. I thank Francisco Sánchez, founder and Director of the IAC, and Antonio Mampaso, Rafael Rebolo, Pere Lluis Pallé, Artemio Herrero, Arturo Manchado, Johan Knapen, and Irene Fernández Fuarros of the IAC Research Division for their help in providing the necessary working environment and administrative support that have considerably lightened the burden of this project. I thank Monique Gómez, the IAC's Librarian, for guiding me through the complexities of permissions.

A special note of thanks is due to Nicola Caon of the IAC for his help in persuading my laptop Linux environment to accept software for encoding devanagari, Arabic, Chinese, Japanese and Korean scripts. I am greatly indebted to Peter Williams, who steered me through the complexities of typesetting Japanese and Chinese names. I thank my colleague Lotfi Yelles Chaouche vetted the numerous Arabic entries in the volume, along with the appendix on Arabic script and I am grateful to Koda Abedi, who kindly corrected the Persian entries.

This volume could not have been produced without the magnificent IAU/USGS Astrogeology Science Center planetary science data base. Jennifer Blue has been unstintingly generous and helpful in providing numerous expert comments on the text and making high-resolution maps of Mercury available to me. The table of Mercury transits, reproduced in this volume, is provided by Fred Espinak as a public domain service to astronomy.

My wife, Carmiña, has been a silent and long-suffering partner throughout this entire project and has had to endure my endless days of seclusion in the preparation of this volume. Without her constant encouragement and support, this volume would never have seen the light of day and it is to her that this work is dedicated with my deepest gratitude and love.

La Laguna, Tenerife, Spain T. J. Mahoney (Editor-in-Chief)
July 2011

How to Use This Gazetteer

This gazetteer and atlas consists of the following elements:

- A brief overview of past and present knowledge concerning Mercury
- A glossary of terms used in Mercurian nomenclature and mapping
- A gazetteer of Mercurian nomenclature
- A classified index of all the entries in the gazetteer
- An atlas of Mercury
- A summary of the IAU rules governing Mercurian nomenclature (Appendix 1)
- Lists of all the non-roman alphabets and syllabaries used in the gazetteer
  (Appendix 2)
- Lists of Mercurian parameters (Appendix 3)
- Information on Mercury transits from A.D. 1605 to 2295 (Appendix 4)
- A Mercury timeline (Appendix 5)
- A full bibliography

The summary of the IAU rules governing Mercurian nomenclature provides essential information to supplement the descriptions given in the gazetteer, which are of necessity concise.

Entry Structure

A typical entry has the following form:

> **Africanus Horton**
> /æfrɪˈkɛɪnəs ˈhɔːtən/
> (*US* /- ˈhɔːɹtən/)
> A crater in the Discovery (Solitudo Hermae Trismegisti quadrangle of Mercury.
> 131.91 km diameter, $(-51.02°, 41.29°)$ [W].
> [James Beale *(Africanus) Horton*, Sierra Leonean author (1835–1883).]
> H:–:AA:AF:SL:5:1976:[7].

This entry consists of the following components:

- **Headword** in boldface sans serif font (a dagger after the headword indicates that the name is obsolete)
- **British pronunciation**, using the International Phonetic Alphabet (IPA) and enclosed in solidi
- **American pronunciation** in IPA and enclosed in solidi
- Comment on usage (in glossary entries only)
- **Top-level definition**, giving only the most general and essential information
- Mid-level definition, expanding in a general way on the top-level definition (in glossary entries only)
- **Bottom-level definition**, offering more detailed information, including map references
- **Etymological information** on the origin of the name (contained within square brackets)
- **IAU codification** for source type, name provenance, status and bibliographical sources

If the British and American pronunciations of a name do not differ significantly, a single pronunciation is given covering both, as in the following example:

> **Shelley**
> /ˈʃɛli/
> A crater in the Michelangelo (Solitudo Promethei) quadrangle of Mercury.
> 170.98 km diameter, $(-47.6°, 128.22°)$ [W], quad. H-12.
> [Percy Bysshe *Shelley*, English poet (1792–1822).]
> H:–:AA:EU:EN:5:1979:[619].

Headwords

The headword is printed in boldface sans serif font. Headwords may be followed by an arabic numeral indicating sense (separate entries are raised for different senses) or a dagger indicating that the name is obsolete. In cases where there is more than one sense and where a given sense is obsolete, the sense number precedes the dagger.

Pronunciation

British pronunciations are given for all entries (in the so-called Received Pronunciation of southern England); American pronunciations are given where these differ notably from the British. The International Phonetic Alphabet is used (see p. xxxi for a full explanation of the IPA symbols). Stress is indicated for anglophone usage rather than according to the phonetic rules of the language of origin. Anglophone renderings of Greek and Russian names, for example, often differ considerably in the placing of stress. Given the perplexed issue of stress in Japanese names, none is indicated in these cases (following the practice in *Webster's Biographical Dictionary*).

Information on Usage and Variants

Any information regarding usage, variants, etc., are given after the pronunciation.

Definitions

Except where the reader is referred to other entries, all entries contain a top-level definition giving the most basic information on the name (body and feature type, and approximate location). This information is given in 12 point font and is followed by more detailed information (size, coordinates and map reference) in 8 point font. There are occasional mid-level definitions in the glossary; these are meant to expand in a general way on the information given in the top-level definition and are given in 10 point font.

Etymologies

Since the anglicization of foreign names often gives rise to ambiguities, all names are traced back to their original form, in the script of origin where possible. Back arrows are used to indicate derivations. Here are sample etymologies from entries dealing with Arabic, Greek and Russian names:

Al-Jāhiz
/æl'ʤaːhɪz/
A crater in the Kuiper (Tricrena) quadrangle of Mercury.
82.86 km diameter, (1.42°, 21.66°) [W], quad. H-6.
[*Al-Jāhiz* ← Arab. الجاحظ **(al-ǧāḥiẓ)**, Arab author (*c.* 781–869).]
H:–:AA:AS:AR:5:1976:[26,27].

Praxiteles
/præ'ksɪtɪliːz/
A crater in the Victoria (Aurora) quadrangle of Mercury.
198.08 km diameter, (27.26°, 60.3°) [W], quad. H-02.
[L. *Praxiteles* ← Gk Πραξιτέλης **(Praxitelēs)**, Greek sculptor (*fl.* 370–330 B.C.).]
H:–:AA:EU:GR:5:1979:[540,541].

Chekhov
/'tʃɛkɔf/
(*US* /'tʃɛkaf/)
A crater in the Discovery (Solitudo Hermae Trismegisti) quadrangle of Mercury.
193.84 km diameter, (−36.22°, 61.33°) [W], quad. H-11.
[*Chekhov* ← Russ. Антон Павлович Чехов **(Anton Pavlovich Chekhov)**, Russian playwright (1860–1904).]
H:–:AA:EU:RU:5:1976:[129,130].

Occasionally, a name is traced back to more than one language, as in the following example:

Repin
/'rjɛpɪn/
A crater in the Kuiper (Tricrena) quadrangle of Mercury.
95.44 km diameter, (−19.11°, 63.34°) [W], quad. H-06.
[*Repin* ← Russ. Илья Ефримович Репин **(Il'ya Yefrimovich Ryepin)** ← Ukrain. Илля Юхимович Репiн **(Illya Yukhimovich Ryepīn)**, Russian painter (1844–1930).]
H:–:AA:EU:RU:5:1976:[574,575].

Individual elements in compound names are linked by a plus sign, as in:

> **Ixionis Vallis**†
> /ɪk'sʌɪənɪs 'vælɪs/
> (*US* /ɪk'sʌɪənɪs -/)
> A long dark albedo feature on the surface of Mercury.
> In Antoniadi's chart, linking Solitudo Criophori to the N and Solitudo Atlantis to the S, and bounded by Pieria to the W and Phaethontius to the E.
> [L. *Ixionis* ('of Ixion') ← Gk Ἰξίων **(Ixiōn)** + L. *vallis* ('valley').] [296,297].

Transcriptions of Non-roman Scripts

Where a name derives from a non-roman script, the name is given in the original script followed by a roman transcription, as in the entries for names in Arabic, Attic Greek, Chinese, Hebrew, Hindi, Japanese, Korean, Modern Greek, Ottoman Turkish, Persian, Russian, Sanskrit, Ukranian and Yiddish. Except for Chinese, Japanese and Korean—all of which use Chinese-based ideographic scripts for names—full descriptions of the transcription systems used are given in Appendix 2.

Chinese Transcriptions Modern Hermographic nomenclature includes names transcribed either in the Wade-Giles system (*Chao Meng-Fu*, *Chu Ta*, *Kuan Han-Ch'ing*, *Liang K'ai*, *Li Ch'ing-Chao*, *Li Po*, *Lu Hsun Ma Chih-Yuan*, *Po Chü-I*, *Po Ya*, *Ts'aiWen-Chi*, *Ts'ao Chan*, *Tung Yüan*, *Wang Meng*) or in pinyin (*Qi Baishi*, *Xiao Zhao*). The four tones, an essential part of the phonemic representation of sounds in the Mandarin dialect, are not represented in the spellings adopted in IAU nomenclature. Both the Wade-Giles and the pinyin transcriptions are given in the etymologies with the tones fully indicated. The Wade-Giles system is older than pinyin and many of the bibliographical sources cited for the entries give Wade-Giles spellings. The more recent pinyin transcription system has the advantage of being less cumbersome, but can occasionally render hitherto familiar names unrecognizable. In the eymologies, both the traditional system and the Simplified Chinese character renditions of names are given.

Japanese Transcriptions The standard *rōmaji* script is used for romanized transcriptions of Japanese names. In the etymologies, Japanese names are traced back to their Chinese-based *kanji* representations.

Korean Transcriptions Before 2000, the McCune–Reischauer romanization system was used for transcribing Korean writing into roman script.

Revised Romanization of Korean was introduced in South Korea in 2000. Both transcription systems are given in the eymologies. Names in Korean are given the phonetic *hangul* script and in Chinese-based *hanja*.

IAU planetary nomenclature aims to include diacritical symbols in feature names. Where the USGS database spelling does not include all the diacritic symbols in a romanized name, the name is preceded by an asterisk at the beginning of the etymology. For example, *Aśvaghoṣa* is rendered as *Aśvaghosa* in the USGS database, so this name appears as **Aśvaghosa* in the etymology for that entry and is followed by the standard Sanskrit transcription with the dot under the second *s* (making it a retroflex sibilant). This correction is made only in the etymology and not in the headword since the latter must stand as the current form of the name officially approved by the WGPSN.

The transcriptions given in the etymologies are not meant as guides to pronunciation or spelling; they serve only to give a full phonemic roman rendering of the original script. A key to the transcriptions from Arabic, Attic and Modern Greek, Hebrew, Hindi, Ottoman Turkish, Persian, Russian, Sanskrit and Ukrainian is given in Appendix 2.

There are a few spurious Latin names in astronomical nomenclature (*Scorpius*, *Solitudo Admetei*, etc.). Such names are indicated by 'L.*' in the etymologies.

For names that are not IAU-approved, or whose status has been in any way altered by the WGPSN, bibliographical references are included at the end of the etymology. In all other cases, bibliographical information is given in the IAU code at the end of the entry.

IAU Codification

Most entries contain a line of code in the following format:

$a : b : c : d : e : f : g : h$,

where

a	=	a one-letter code for the parent planet
b	=	a two-letter code for a satellite
c	=	a two-letter code for feature type
d	=	a two-letter code for continent
e	=	a two-letter code for ethnicity
f	=	a one-digit number (1–7) for IAU status
g	=	date of acceptance by the IAU four-digit year (before mid-September 2006) and in the format YYYY Mon DD thereafter
h	=	a numbered bibliographical source in brackets

The coding is explained in Appendix 1.

Pronunciation Guide

Both British and American pronunciations are given in the gazetteer. The International Phonetic Alphabet (IPA) is used since this system offers an unequivocal symbol for each sound. The pronunciations are those of educated anglophones, Received Pronunciation being used for British pronunciations [1], and the nearest equivalent in *Webster's Biographical Dictionary* [2] and *Merriam-Webster's Collegiate Dictionary* [3] for American pronunciations. Astronomical nomenclature in recent years has endeavoured to incorporate names from as wide a range of cultures as possible with the result that most of the names listed in this work will be unfamiliar to most readers. No attempt is made here to reproduce original pronunciations of foreign names, such names instead being given pronunciations that reflect standard British and American phonetic practice.

Notes on the Pronunciation of Classical Names

The following rules, derived from *Lemprière's Classical Dictionary* [4], apply to classical Greek and Latin names:

1. When preceded by an accented syllable and followed by *i* + another vowel, the consonants *c*, *s* and *t* have the sound ʃ (*sh*); hence, *Caduceata* (kædjuːʃiːˈɛɪtə).
2. Similarly, when *c* is preceded by an accented syllable followed by *eu* or *yo*, it is pronounced ʃ (*sh*). An exception to this rule is made when *t* is preceded by *s* or *x*, in which case the *t* retains its hard sound; hence, *Sextius* is pronounced ˈsɛkstɪəs, not ˈsɛkʃəs.
3. Where *si* or *zi* follow an accented syllable and are followed by a vowel the *s* or *z* take the ʒ sound (as in plea*s*ure); hence *Elysium* (ɪˈliːʒəm) and *Hesiod* (ˈhiːʒɪəd). Exceptions to this rule are *Asia*, *Lysias*, *Theodosia* and a few others.

4. When *x* ends an accented syllable and is preceded by *i* followed by a vowel, it takes the sound *ksh* (kʃ); hence *Alexia* is pronounced əˈlɛkʃə.
5. In the termination *-eia*, *-eium* and *-eius* the intermediary *i* takes the property of the consonant *y* (as in *y*es). This rule also applies to *-aia* in *Achaia* and *-oia* in *Latoia*.
6. In names beginning with two uncombinable initial consonants the first consonant is silent; hence, the *C* in *Cneus*, the *M* in *Mneus*, *P* in *Psyche*, the *Ph* in *Phthia* and the *T* in *Tmolus* are not pronounced.
7. The Greek termination -ευς (*-eus*) is pronounced as *use* (juːs).

Vowels

IPA	*Pronounced*	*As in*
a	*o*	t*o*p (US)
aː	*a*	f*a*ther
æ	*a*	h*a*t
ɛ	*e*	b*e*nch
ɛː	*ai*	*ai*r
ə	*a*	*a*dore
əː	*i*	b*ir*d
ɪ	*i*	s*i*t
i	*y*	happ*y*
iː	*ea*	p*ea*ce
ɔ	*o*	p*o*p
ɔː	*o*	p*or*t
ʌ	*u*	b*u*t
ʊ	*oo*	b*oo*k
uː	*oo*	b*oo*t

Diphthongs & triphthongs

IPA	*Pronounced*	*As in*
ʌɪ	*y*	cr*y*
aʊ	*ow*	c*ow*
eɪ	*ay*	p*ay*
əʊ	*o*	g*o*
ɪə	*ie*	p*ie*r
oʊ	*o*	c*o*pe (US)
ɔɪ	*oy*	t*oy*
ʊə	*our*	t*our*
ʌɪə	*yre*	p*yre*
aʊə	*our*	h*our*

Consonants

IPA	*Pronounced*	*As in*
b	*b*	*b*ag
d	*d*	*d*ock
f	*f*	*f*at
g	*g*	*g*um
h	*h*	*h*and
j	*y*	*y*ou
k	*c*	*c*ore
l	*l*	*l*amp
m	*m*	*m*ore
n	*n*	*n*ow
p	*p*	*p*at
r	*r*	*r*ain
ɹ	*r*	bi*r*d (US)
s	*s*	*s*ong
t	*t*	*t*eam
v	*v*	*v*eal
w	*w*	*w*ait
z	*z*	*z*est
ʃ	*sh*	*sh*ade
ʒ	*s*	plea*s*ure
θ	*th*	*th*eme
ð	*th*	*th*ere
ŋ	*ng*	pa*ng*
x	*ch*	lo*ch*
tʃ	*ch*	*ch*arge
dʒ	*j*	*j*eep

Abbreviations Used

abbr.	abbreviation
A.D.	Anno Domini
Afr.	Africa(n)
Afrik.	Afrikaans
Alban.	Albania(n)
Amer.	American
Amer. Ind.	American Indian
anon.	anonymous
Arab.	Arabic
Aram.	Aramaic
Arm.	Armenian
AS	Anglo–Saxon
Austral.	Australia(n)
b.	born
Bab.	Babylonian
B.C.	Before Christ
Belg.	Belgian *or* Belgium
Beng.	Bengali
bet.	between
Bret.	Breton
Brit.	British
Bulg.	Bulgarian
Can.	Canada *or* Canadian
Can. Fr.	Canadian French
Catal.	Catalan
c.	circa
Celt.	Celtic
cf.	*confer* (compare)
Chick.	Chickasa
Chin.	Chinese
cm	centimetre
colloq.	colloquial(ly)
cont.	continued
Copt.	Coptic
d.	died
Dan.	Danish
Du.	Dutch
E	east(ern)
ed.	edited *or* editor
edn	edition
e.g.	*exempli gratia* (for example)
Egypt.	Egyptian
Eng.	English
erron.	erroneous(ly)
esp.	especially
Eston.	Estonia(n)
et al.	*et alii/aliae*
etc.	*et cetera*
Etrusc.	Etruscan
Eur.	Europe(an)
f.	following
fem.	feminine
ff.	following
Finn.	Finnish
fl.	flourished
Flem.	Flemish

Fr.	French
freq.	frequently
fr.	from
Gael.	Gaelic
gen.	genitive
Georg.	Georgian
Ger.	German(y)
Gk	Greek
Heb.	Hebrew
hist.	historical
Hitt.	Hittite
hr	hour
Hung.	Hungarian *or* Hungary
Icel.	Iceland
i.e.	*id est* (that is)
IE	Indo–European
incl.	including
Ind.	Indian
Ir.	Ireland *or* Irish
Is.	Island
Ital.	Italian
Jap.	Japan(ese)
Jav.	Java(nese)
Kaz.	Kazakh
L.	Latin
Lith.	Lithuanian
m	metre
masc.	masculine
Mex.	Mexican *or* Mexico
mod.	modern
Mt	Mount
N	north(ern)
N. Amer.	North American
NE	north-east(ern)
Neth.	Netherlands
neut.	neuter
Norw.	Norway *or* Norwegian
NW	north-west(ern)
NZ	New Zealand
obsoles.	obsolescent
occas.	occasionally
ON	Old Norse
orig.	originally
OCS	Old Church Slavonic
OE	Old English
Ott.	Ottoman
Per.	Persia(n)
perh.	perhaps
Phil.	Philippines
pl.	plural
Pol.	Polish
Port.	Portuguese
poss.	possible/ly
prob.	probably
Prov.	Provençal
pseud.	pseudonym
qqv.	quae vide
qv.	quod vide
resp.	respectively
rev.	revised
Rum.	Romanian
Russ.	Russian
s	second (time)
S	south(ern)
S. Afr.	South Africa(n)
S. Amer.	South America(n)
Sc.	Scots, Scottish
Scot.	Scotland
Scand.	Scandinavian
SE	south-east(ern)
Sem.	Semitic
Serb.	Serbia(n)
sing.	singular
Skr.	Sanskrit
Sp.	Spanish
sq.	square
Sr	Senior
St	Saint
Ste	Sainte (Fr.)
suppl.	supplement
Swed.	Sweden, Swedish
Switz.	Switzerland
Tag.	Tagalog
Tel.	Telugu
tr.	translated
transcr.	transcribed
translit.	transliterated/transliteration
Turk.	Turkish
UK	United Kingdom
Ukrain.	Ukrainian
US	United States

USSR	Union of Soviet Socialist Republics
usu.	usually
Uz.	Uzbek(istan)
vs.	versus
var.	variant
viz.	videlicet (namely)
vol.	volume
vols	volumes
WI	West Indies
wr.	written
W	west(ern)
Yid.	Yiddish
yr	year
Yugo.	Yugoslavia
*	erroneous
**	uncertain
†	obsolete
←	derived from
→	from which

Mercury: An Overview

Mercury in Ancient Lore

The name *Mercury* derives from the Latin name *Mercurius*, the Roman messenger god. The Latin name clearly indicates the deity's association with trade (L. *mercari*, 'to trade'). In Greek Mythology, the messenger god Hermes (Ἑρμῆς, *Hermēs*), son of Zeus and Maia, is known by many variants.[1] He appears in a variety of guises as Ἀργειφόντης (*Argeiphontēs*, 'Slayer of Argos'), Κυλλῆνιος (*Kyllēnios*, 'Star of Cyllene') and Στίλβων (*Stilbōn*, 'the Gleaming One'). The process of Roman syncretization of Greek deities began in the fourth century B.C. under the Republic (Mercury had no counterpart among the indigenous pantheon of the Romans). In later Roman mythology he acts as 'psychopomp', leading newly departed souls to Hades, just as in Greek mythology. Caesar and Tacitus took Roman syncretism a stage further in equating Mercury with Lugus, the Celtic god of trade [2] and the Germanic god Wotan [3].

It was known to the Egyptians, Chaldeans and ancient Greeks that the morning and evening apparitions of Mercury belonged to the same celestial body [4]. By 1150 B.C. the Egyptians had identified the morning and evening apparitions of Mercury as being of the same body [5].

In Egyptian mythology Mercury *sbgw* (*sbq* in the Ptolemaic era [6], meaning unknown) is a shadowy figure, associated with Seth, the evil god in the Osiris legend [7].

The earliest observations of Mercury are recorded in the Assyrian *mul.apin* tablets [8,9]. Mercury was known to the Babylonians as *gu$_4$-utu*. It was called *gu$_4$-utu ina kur igi-su* ('Mercury in its morning appearance') and *gu$_4$-utu ina šú igi-su* ('Mercury in its evening appearance') [10].

The earliest extant tablet dates from around 700 B.C., but, based on a **chi-squared analysis** of 190 observations in the *mul.apin*, Schaefer places the observations at epoch 1130 ± 100 B.C., comfortably within the

[1] For example, Ἑρμείας, Ἑρμείης, Ἑρμέας, Ἑρμέης, Ἑρμᾶς and Ἑρμάως [1].

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2_1,

commonly accepted range 1300–1000 B.C. [11]. Newton [12] lists synodic phenomena and **conjunctions** for Mercury for the late Babylonian period. In Babylonian lore, the planet is named after *Nabu*, the Babylonian messenger god and divine patron of wisdom and writing [13] (*Nebo* in Biblical Hebrew [14]), and is the son of Marduk and Sarpanitum.

Mayan astronomy, like that of Babylonia, was dedicated to the search for periodicities rather than a Greek-style quest for a geometrical explanation of the cosmos. The extant codices used by Mayan astronomers, for example the *Codex Dresdensis* [15], suggest a preoccupation with Venus and relatively little attention being devoted to the other visible planets. Aveni [16], however, argues that such observations must surely have been made. Kelley [17] makes a case for associating certain periodicities with the **synodic period** of Mercury.

Hindu mythology identifies Mercury with *Budha*,[2] patron of merchants and son of Chandra (the Moon) and either Rohiṇi (Aldebaran) or Tārā (wife of Jupiter). In later Purāṇic literature the planet Mercury is named variously as *Budha*, *Saumya*, *Rauhiṇeya* and *Tuṅga* [18], the first extant explicit mention of *Budha* (*Budh* in Hindi) as the planet Mercury occurring in the *Pañcaviṃśa Brāhmaṇa* (after 1900 B.C.). Divine status is given to the five visible planets in the *Ṛgveda* and the *Śatapatha Brāmaṇa*. Mercury is identified in the *Ṛgveda* with the god Viṣṇu, who is described as measuring out the Universe in three steps. Kak [19] interprets the three steps of Viṣṇu as three successive revolutions of Mercury in 261 **sidereal days** (giving a **sidereal period** for Mercury of 87 days, which is fairly close to the true value of 87.9691 days).

In the Chou (Zhōu) Dynasty (1046–256 B.C.), Chinese astronomers paid little attention to Mercury beyond noting the moon stations (*hsiu*) in which the planet made its regular appearances and disappearances [20]. In the *Han-shi* ('Annals of Han') [21], which cites astronomical topics from a textbook written in A.D. 25 by Liu-Hsin, the synodic period of Mercury is given as 115.91 days (cf. modern value of 115.88 days [22]). Chinese astronomy in this period was probably autochthonous, but from the first century A.D. western influence began to make itself felt as China established trading links with the Roman Empire via Persia [23].

By the eighth century A.D. China had frequent connections with the Islamic world, and Arabic and Persian *zījim* (astronomical handbooks, originally based on Ptolemy's *Handy Tables* [24]) began to be translated into Chinese. The only extant such translation is the*Huihui li* ('Islamic

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[2] *Budha* is known as *Budh* in Hindi and *Buddh* in Urdu; however, none of these names should be confused with that of the spiritual leader Gautama Buddha, founder of Buddhism.

Astronomical System'), of which three different versions exist [25]. It has been shown [26] that the first equation table for Mercury in the *Huihui li* follows a tradition inherited from similar tables in the *Sanjufīnī Zīj* [27] and al-Bīrunī's *al-Qāntūn al-Masʿūdī* [28].

Mercury and Wednesday

In Europe and Asia, there are, broadly speaking four traditions for the naming of Wednesday [29]:

1. After the god Mercury or a similar local god
2. As the mid-day of the week
3. As the fourth day of the week
4. As the third day of the week

Budh (to give him his name in Hindi; *Budha* in Sanskrit) presides over Wednesday (*Budhavār* in Hindi). The same association of Mercury with Wednesday is seen in many of the Romance languages: *dies Mercurii* (Latin), *dimecres* (Catalan), *Mercuri* (Corsican), *mercredi* (French), *mercoledì* (Italian) and *miércoles* (Spanish). The Romance association of Wednesday with Mercury dates back to Tacitus, who was the first to associate Mercury with Wotan (Old English *Wodan*). The present day English *Wednesday* derives from Middle English *Wēdnes dei*, which in turn owes its origin to the Old English *Wōdnesdæg*. In Old Norse Wednesday is 'Odin's day' (*Oðinsdagr*).

In contrast to these Mercury-based etymologies for *Wednesday*, are the so-called 'middle-of-the-week', 'fourth-day' and 'third-day' etymologies. In Finnish, German and most of the Slavonic languages, Wednesday is named after the middle day of the working week (Monday to Friday); hence, *Keskiviikko* ('middle of the week', Finnish), *Mittwoch* (German), *Miðvikudagur* (Icelandic), *srijeda* (Croatian), *středa* (Czech), *środa* (Polish), *streda* (Slovak), *sreda* (Slovene), сряда (*sryada*, Bulgarian), среда (*sreda*, Macedonian, Russian and Serbian), and середа (*sereda*, Ukrainian).

'Fourth-day' derivations include: *cuarta-feira* (Portuguese), Τετάρτη (*Tetarti*, modern Greek)and الاربعاء (*alarbʻāʻ*, Arabic). Fourth-day names were usually chosen in conscious religious eschewal of what was perceived as the pagan Mercury tradition.

In Estonian the day is named *kolmappäev* ('third day') and in Mandarin (which does not number Sunday) *xīngqí sān* ('day three').

Telescopic Mapping of Mercury

Johann H. Schröter (1745–1816) [30] and his assistant Carl L. Harding (1765–1834) [31], both working at the former's observatory in Lilienthal

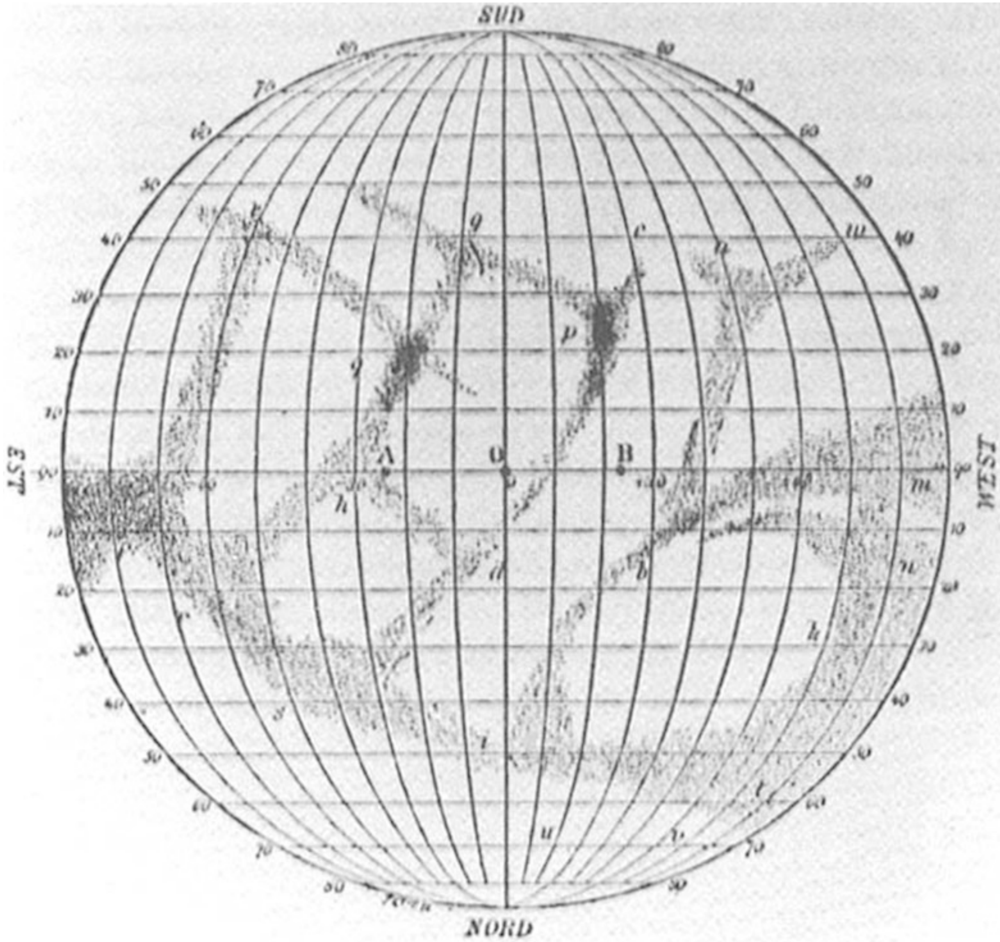


Figure 1. Schiaparelli's map of Mercury (*Reproduced from* Astronomische Nachrichten)

in Germany, were the first to claim to have observed surface features on Mercury. Schröter drew mountains and a dark streak on the disc, from which observations Bessel derived a **rotation period** of $24^{\mathrm{h}}\ 0^{\mathrm{m}}\ 53^{\mathrm{s}}$ and a **rotational axis** inclination of 70° to the plane of the planet's **orbit** [32]. Although Schröter's mountains turned out to be illusory, he correctly noted that the observed **phase** of Mercury was always less than the theoretical value, and that the south **cusp** was blunted (according to Schiaparelli, owing to the presence of dark areas near the south pole).

William F. Denning (1848–1931) [33] identified a number of spots on the surface and from them deduced a rotation period of $24^{\mathrm{h}}\ 42^{\mathrm{m}}$ [34]. Giovanni V. Schiaparelli (1835–1910) [35] observed Mercury between 1881 and 1889 and drew the first reliable map of the **albedo features** (see Fig. 1) [36]. From the apparent constancy of the surface features, he arrived at the dramatically different conclusion that the period of rotation was equal to the **orbital period** ($87^{\mathrm{d}}.9691$) [37].

Percival Lowell (1855–1916) [38] mapped streaks across the face of Mercury [39,40,41], but these features did not coincide at all with Schiaparelli's markings. However, Lowell concurred with Schiaparelli on the **tidally locked rotation** period. His map is distinguished by many streak-like features [42], each named in elaborate accordance with the legend of Hermes. Lowell's work was received with almost uniform scepticism; Payne, however, gives a full and sympathetic description of Lowell's Mercury observations [43]. Intriguingly (in the light of the discovery by ***Mariner 10*** of long **lobate scarps** on the surface), Lowell explained his streaks as the result of the cooling of the planet [44]. Lowell's streaks were non-existent, but the lobate scarps are currently explained as the result of a 1–2 % shrinkage of the planet's radius.

Graff [45] and other physicists questioned the 1:1 **tidal locking** of Mercury on the grounds of radiometric measurements of the planet's disc that suggested a rather different story. However, Eugène M. Antoniadi (1870–1944) [46], considered at the time to be the leading authority on Mercury, gave short shrift to the physicists' reservations and the astronomers of the day agreed with him [47].

The 1:1 tidal locking hypothesis was seriously challenged in 1965. Radar observations between 1963 and 1965 [48,49,50] hinted that the rotation period of Mercury might be less than the hitherto accepted 88 days. Peale and Gold [51] constrained the rotational period to within the interval 59 ± 5 days from **Doppler-spread** radar measurements. The question was settled beyond conjecture when Pettengill and Dyce [52] made a reliable determination for the rotational period of 58.65 days. In their paper Peale and Gold had argued that the combined high **eccentricity** of Mercury's orbit and **tidal friction** would have resulted in a final rotational period of 56–88 days. An explanation of the 2:3 ratio of orbital to rotation period was finally given by Giuseppe Colombo in 1965 [53,54].

IAU Commission 16 (Physical Study of Planets and Satellites) defined the origin of **planetographic longitudes** for Mercury to be the **meridian** containing the **subsolar point** during the first **perihelion** passage of 1950 (at JD 2433292.63) [55]. The Commission adopted a **sidereal rotation period** of 58.6462 days and (as it turned out approximately correctly) an arbitrary **obliquity** of 0°.

The discovery of the non-synchronous rotation of Mercury led to an overhaul of the mapping and nomenclature of Mercury. Antoniadi's Sun-synchronous assumption for the rotation of Mercury meant that his '88 day' planisphere (Fig. 2) mapped only what he thought was the permanently illuminated side of Mercury. In the light of the now firmly established 58.65 day rotation period, Krumenaker [56,57] recalculated the longitudes of Antoniadi's mapped albedo features and found that, although some of them could retain Antoniadi's calculated positions, others would need to be stretched out to cover the new 360° planisphere of Murray, Dollfus and Smith [58]. The planisphere by Dollfus (Fig. 3) was adopted by the IAU [59].

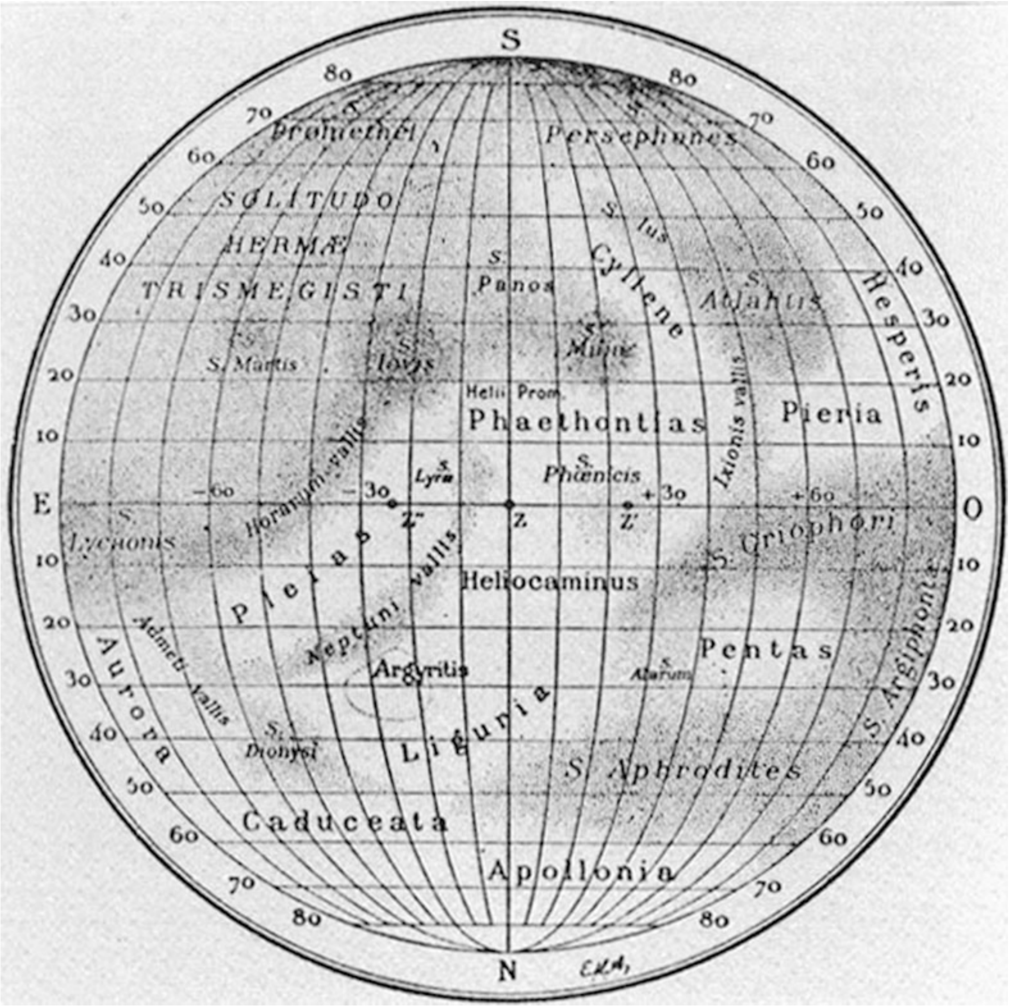


Figure 2. Antoniadi's map of Mercury based on his observations of 1924 and 1927–1929 made with the 33-in. (83.82 cm) **refactor** at Meudon Observatory (*Courtesy of Gauthier-Villars*)

In 1934 Antoniadi [60] had adopted the popular suggestion by Schiaparelli that Graeco–Latin mythology pertaining to Mercury/Hermes in his planisphere. The IAU retained much of Antoniadi's original scheme, 28 of his 34 named **albedo features** surviving into the new revision, with four newly named features (Australia, Borea, Gallia, and Tricrena), his **vallis** and **promontorium** features being dropped.

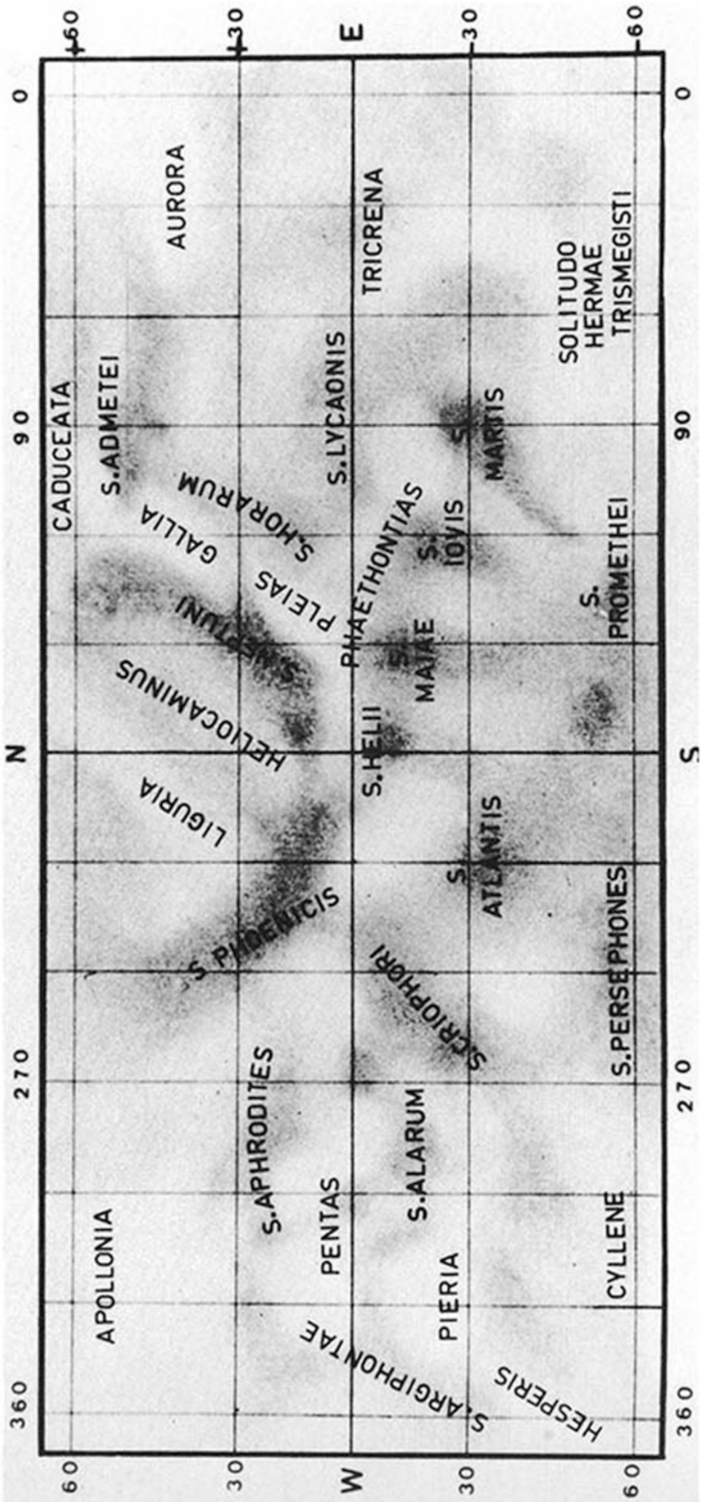


Figure 3. Dollfus's map of Mercury. Some of the features in Antoniadi's map have been redistributed to fill the entire range of longitude (*Reproduced with the permission of Elsevier*)

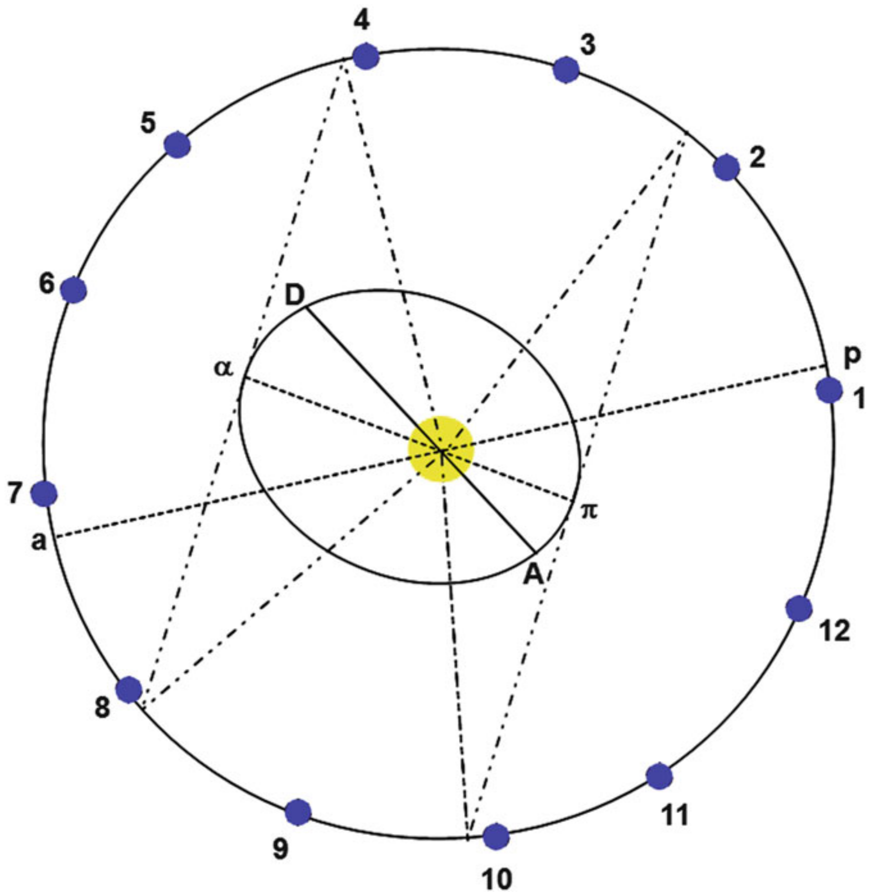


Figure 4. The orbits of Mercury and Earth (not to scale). A is the **ascending node** of the Mercurian orbit, D the **descending node**, α the **aphelion** of Mercury, π the **perihelion** of Mercury, a the aphelion of Earth and p the perihelion of Earth. When Mercury is a morning object, its most favourable **greatest western elongation** occurs in April and least favourable elongation in September. When the planet is an evening object, most favourable **greatest eastern elongation** falls in August and least favourable eastern elongation in February

Orbit

In spite of its occasional brilliance in the morning and evening **twilight** (it sometimes outshines the star Sirius), Mercury is a difficult planet to observe [61,62,63]. At most favourable **greatest western elongation**, in early April when Mercury is a morning object, the planet is at aphelion and is a mere 27° 45′ from the Sun. Least favourable **greatest western elongation** occurs in September, when Mercury is at perihelion and only 17° 50′ from the Sun. When Mercury is an evening object, greatest eastern elongation has its minimum value (17° 50′) in February and its maximum

value (27° 45′) in August (Fig. 4). The planet is best viewed from the tropics, where the **ecliptic** is more steeply inclined to the horizon than at temperate latitudes and twilight is at its shortest.

Mercury's orbit (see Appendix 7. for full details) is highly elliptical (with an eccentricity of 0.2056, hence the large variations in greatest elongation), taking the planet 46.00 million kilometres from the Sun at perihelion, at which point it is moving at 58.98 km s^{-1}, and out to 69.82 million kilometres at **aphelion**, where the speed slows to 38.86 km s^{-1}. The **sidereal orbital period** is 87.9691 Earth days. The plane of Mercury's orbit is inclined at 7.005° to the ecliptic.

Advance of Perihelion

As with all the planets, the line joining Mercury's perihelion and aphelion (the **major axis**, or **line of apsides**) gradually turns in the same direction in which the planet moves in its orbit [64]. This effect is mostly brought about by gravitational interaction among the planets, but an extra 43.03 arcsec per century in the case of Mercury [65] can only be accounted for by Einstein's general theory of relativity owing to Mercury's close proximity to the Sun (placing it deep in the latter's **gravitational potential well**). Gilvarry [66] has listed the following values for **general-relativistic precession**: 10.05″ (Icarus), 43.03″ (Mercury), 8.63″ (Venus), 3.84″ (Earth) and 1.35″ (Mars).

Rotation Period

Mercury has almost no axial tilt (2.11 arcmin) [67] and hence no seasons. With reference to the background stars, Mercury rotates once on its axis every 58.785 Earth days. After a complete orbit Mercury has rotated on its axis one-and-a-half times, so that in two orbits it has rotated exactly three times; hence, the planet is said to have a 3:2 **spin–orbital resonance**. This state was brought about by despinning. It has been suggested [68] that the 3:2 resonance—unlike of the more familiar 1:1 synchronous rotation of the Moon, for example—resulted from the chaotic nature of Mercury's orbital dynamics.

A **solar day** on Mercury (i.e. from noon to the following noon) is 175.942 Earth days—twice the **orbital period**. **Axial spin** causes the Sun to appear to move right round the sky from east to west, but the progression of the planet in its orbit produces a contrary motion of the Sun, with the net result that the Sun appears to move more slowly in the sky than it would in the absence of the planet's orbital motion; hence, Mercury's 'day' is twice as long as its year. Since the planet's axial spin (58.785 Earth days) is faster than its orbital period (87.9691 Earth days), the west-to-east motion is (on average) the greater. However, to complicate matters still further, the high eccentricity of the orbit, causing the planet to speed up in its orbital motion near perihelion, produces pronounced

libration effects as seen from the surface of Mercury, where the Sun's apparent motion across the sky from moving east to west slows down and briefly reverses its apparent motion as Mercury reaches perihelion before subsequently resuming its east–west progression (see Fig. 5).

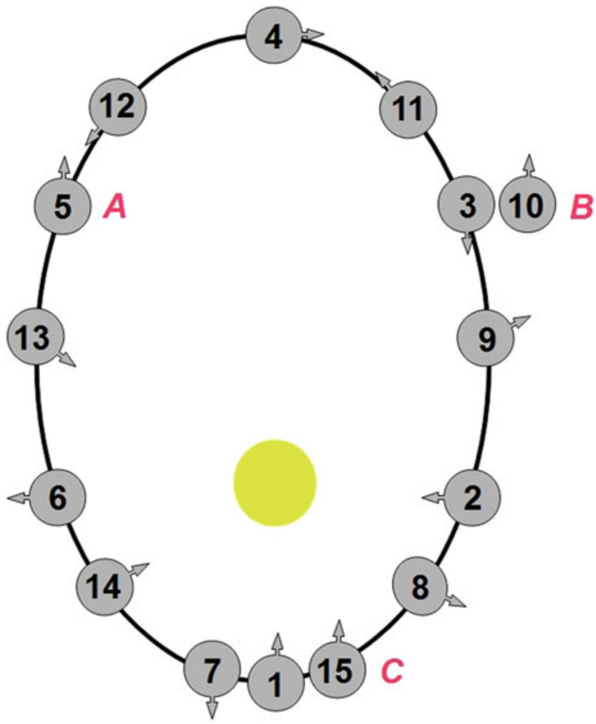


Figure 5. Mercury's **spin–orbit resonance**. The planet spins three times on its axis (A, B and C mark the first, second and third rotations respectively) for every two orbital laps (7 and 15)

Space Probes to Mercury

So far two space probes have visited Mercury and a third is being planned. The first probe, ***Mariner 10***, was launched by NASA on 1973 November 3 and made three **flybys**. The ***MESSENGER*** probe was launched by NASA on 2004 August 3 and has now completed three flybys and was inserted into orbit around Mercury on 2011 March 18. ***BepiColombo*** is now being built by ESA and will be launched in 2014, eventually to be inserted into orbit around Mercury in 2020.

Mariner 10

Mariner 10 revolutionized Hermographic cartography by providing the first high resolution images of 43.01 % of the surface of the planet, revealing hitherto undiscovered features such as impact craters, lobate scarps

and mountain ranges [69,70]. *Mariner 10* achieved a number of space firsts: it was the first probe to reach Mercury, the first to use **gravity assist** techniques in the modification of its trajectory, the first to use **solar radiation pressure** to control its **attitude** during flight, and the first to visit two planets. Its main mission objectives were to measure Venus' atmosphere and Mercury's vicinity, atmosphere (which turned out to be an **exosphere**), surface conditions and bulk characteristics. Its secondary objective was to test the **gravitational slingshot** technique.

Launched from NASA's Kennedy Space Center on 1973 November 3, *Mariner 10* (Fig. 6) made a flyby of Venus on 1974 February 5 at a closest range of 5768 km, carrying out a series of studies of the **Cytherean** atmosphere, including imaging of the planet's 'chevron' clouds in the ultraviolet. The probe then went on to perform three flybys of Mercury on 1974 March 29 (range: 703 km), 1974 September 21 (range: 48 069 km) and 1975 March 16 (range: 327 km).

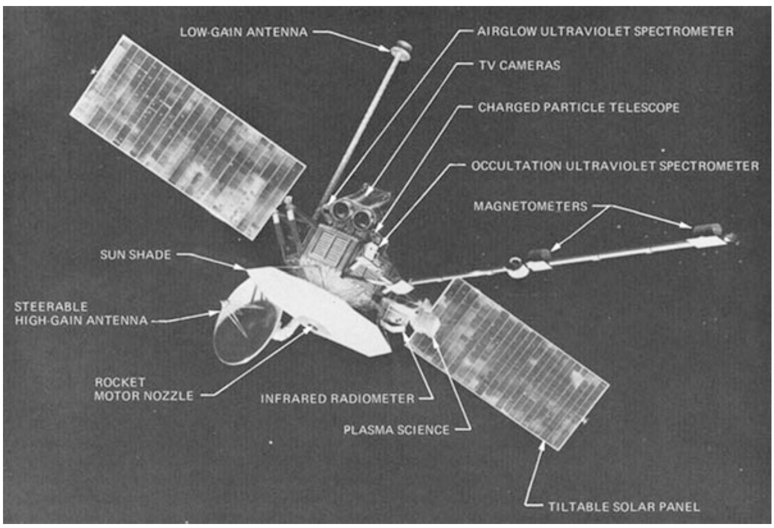


Figure 6. *Mariner 10* and its instrumentation

Mariner 10 carried the following instruments on board [71]:

- An **infrared radiometer** to measure (at 34–55 and 7.5–14 μm) the surface temperature of Mercury and the clouds of Venus
- A **plasma** science experiment for measuring the **solar wind** in the vicinity of Mercury
- A **magnetic field** experiment
- An experiment to search for charged particles in the vicinity of Mercury
- An **extreme ultraviolet** experiment consisting of a Sun-directed **occultation spectrometer** and an **airglow** instrument to analyse planetary atmospheres

- An occultation experiment to analyse the effects of planetary atmospheres on the radio signals received from the probe
- A **celestial mechanics** experiment to measure the **mass** and **gravitational fields** of Mercury and Venus
- A television experiment consisting of two vidicon cameras mounted on **folded Cassegrain telescopes** to provide narrow-angle, high-resolution photography of the surfaces of Mercury and Venus

MESSENGER

NASA's *MErcury Surface, Space ENvironment, GEochemistry, and Ranging* (*MESSENGER*) probe was launched from Cape Canaveral Air Force Station on 2004 August 3 to carry out a full study of the characteristics and environment of Mercury while in orbit around the planet. Gravity assist manoeuvres were used to enable the craft to lose sufficient velocity to reach Mercury, which is very deep in the Sun's gravitational well. *MESSENGER* performed flybys of Earth on 2005 August 2, Venus on 2006 October 24 and 2007 June 5, and Mercury on 2008 January 14 (closest approach 200 km above the surface of the planet), 2008 October 6 and 2009 September 29 [72,73,74]. It was inserted into Mercury orbit on 2011 March 18.

The **periapsis** of *MESSENGER*'s nominal orbit is 200 km above the surface at 60°N latitude and the **apoapsis** is at 15 193 km. The orbit is inclined 82.5° to Mercury's equator the better to view the shadowed floors of impact craters near the north pole. To counter such effects as solar radiation pressure and keep periapsis below 500 km and initially located at 60°N latitude,[3] small thrust adjustments will be made to the orbit once every Mercurian year (88 days). Periapsis was chosen at the given latitude to enable *MESSENGER* to make a close study of the geology and chemical composition of the Caloris basin.

MESSENGER (Fig. 7) carries the following scientific instruments [75]:

- **MDIS**: **Mercury Dual Imaging System**
- **GRNS**: **Gamma-Ray and Neutron Spectrometer**
- **XRS**: **X-Ray Spectrometer**
- **MLA**: **Mercury Laser Altimeter**
- **MASCS**: **Mercury Atmospheric and Surface Composition Spectrometer**
- **EPPS**: **Energetic Particle and Plasma Spectrometer**
- **MAG**: **Magnetometer**

[3]Because of solar **torques**, the latitude of periapsis is predicted increase to 72° after 1 year in orbit.

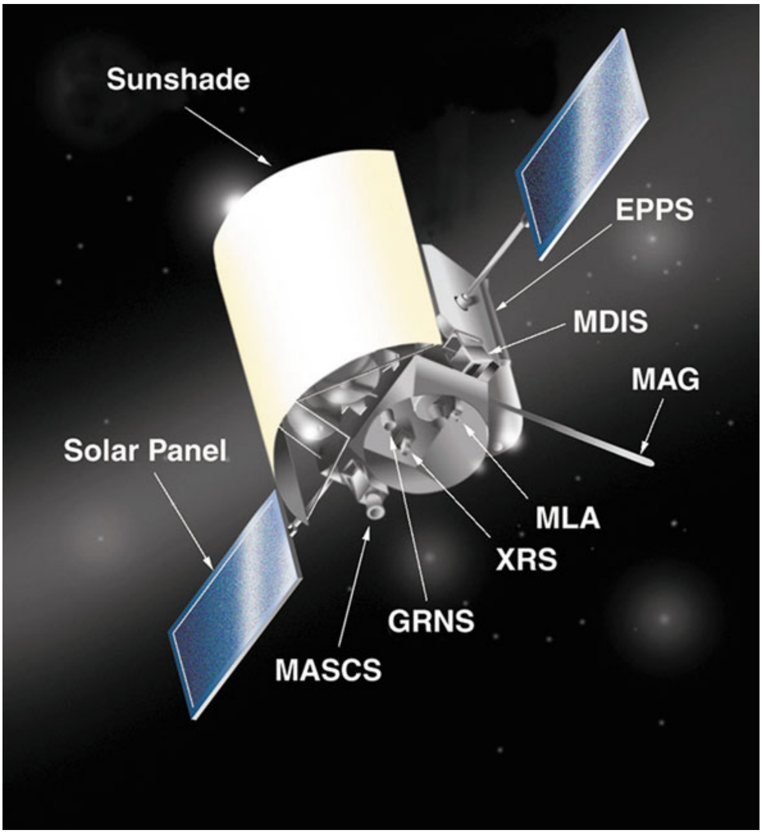


Figure 7. The *MESSENGER* probe

Radio science experiments are performed using the on-board **X-band** communications system.

The scientific brief of the mission is to study, during one Earth year, the chemical composition of Mercury's surface, the geological history of the planet, the characteristics of the magnetic field, the size and state of the **core**, the nature of the **volatiles** at the poles, and the characteristics of the exosphere and **magnetosphere** [76].

BepiColombo

The *BepiColombo*[4] (Fig. 8) probe will comprise two separate craft, the ***Mercury Planet Orbiter*** (***MPO***) and the ***Mercury Magnetospheric Orbiter*** (***MMO***) [77]. *BepiColombo* will be launched in 2014 on a Soyuz 2-1B rocket with a Fregat-M upper stage. The probe will cruise to Mercury on a **heliocentric transfer orbit** and will reach Mercury in

[4]Named after Professor Giuseppe (Bepi) Colombo (1920–1984), who first suggested the spin–orbital resonance causing Mercury to rotate three times every two orbital periods.

Figure 8. Artist's impression of the *BepiColombo* mission's *Mercury Magnetospheric Orbiter* (*top left*) and *Mercury Planetary Orbiter* (*bottom right*)

2020. The *MPO* and *MMO* will then be inserted into different orbits: 400×1500 km (with a period of 2.3 h) for the *MPO* and $400 \times 12\,000$ km (with a period of 9.2 h) for the *MMO*. The two craft will gather data from September 2020 until September 2021, with a possible extension until 2022.

The main scientific objectives of *BepiColombo* will be the evolution of Mercury as a planet close in to its parent star; the shape, interior, structure, geology and composition of the planet; the composition and dynamics of the Mercurian exosphere; the structure and dynamics of the magnetosphere; the origin of the magnetic field, and proof of Einstein's general theory of relativity.

The *MPO* will carry the following suite of instruments:

- **BELA**: a laser altimeter
- **ISA**: a radio accelerometer
- **MERMAG**: a magnetometer
- **MERTIS-TIS**: a thermal infrared spectrometer

- **MGNS**: a gamma-ray and neutron spectrometer
- **MIXS**: an X-ray spectrometer
- **MORE**: a Ka-band transponder for radio science
- **PHEBUS**: an ultraviolet spectrometer
- **SERENA**: an ionized and neutral particle analyser
- **SIMBIO-SYS**: a high resolution stereoscopic camera in the visible and near infrared
- **SIXS**: a solar monitor

The *MMO* will carry:

- **MERMAG-M/MGMF**: a magnetometer for Mercury
- **MPPE**: a plasma and particle experiment
- **PWI**: a plasma wave instrument
- **MSASI**: a spectral camera for atmospheric sodium on Mercury
- **MDM**: a dust monitor for Mercury

Internal Structure

With a radius of 2439.7 km, Mercury is smaller than Ganymede and Titan, making it the smallest of the planets. However, Mercury is the second densest planet in the Solar System (5.427 g cm^{-3}, compared to the Earth's 5.515 g cm^{-3}). If gravitational compression is taken into account, Mercury becomes the densest planet in the Solar System with an uncompressed density of 5.3 g cm^{-3} [78,79] (compared with 4.1 g cm^{-3} for Earth). This relatively high density is due to its at least 60% metallic content [80] and 30% [81] silicate internal composition.

Mercury's small size means that gravitational compression alone cannot be responsible for the high density of its interior; therefore, the core must be large in comparison to the overall radius (the latest *MESSENGER* results sets this figure at approximately 85% [82], compared to 55% for outer core of the Earth [83]) and possess a high iron content (Fig. 9). The core is surrounded by a mantle that is <600 km thick, and the mantle in turn is enclosed inside shell of crust whose thickness has yet to be determined [84].

The high iron content of Mercury's core (the highest of all the planets in the Solar System) has been explained by three hypotheses:

1. The impact of a planetesimal several hundred kilometres in diameter and containing about 1/6 Mercury's initial mass (about 2.5 times its present mass), removing a large part of the original crust and mantle but leaving the core intact [85].

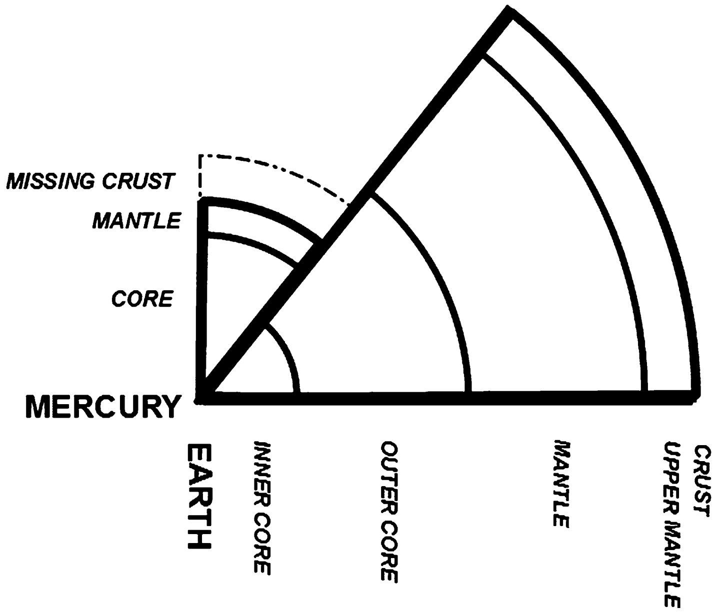


Figure 9. Cutaway segments of the inner structure of Mercury and Earth

2. The high temperature of a putative proto-Mercury within the solar nebula before the stabilization of the proto-Sun's temperature, leading to the vaporization of silicates and their expulsion by the solar wind [86].
3. The silicate grains were slowed more than comparably sized metal grains, both following Keplerian orbits around the Sun, by aerodynamic drag exerted by nebular gas (which, being partially supported by radial pressure gradients in the nebula, rotated more slowly than the grains). The silicate grains spiralled into the Sun and were thus gradually lost to the disc, the metal-to-silicate ratio being correspondingly increased in the region from which most of the material was accreted on to Mercury [87].

It is expected that *MESSENGER* and the forthcoming *BepiColombo* probe will provide sufficient observational data to discriminate among the differing predictions arising from the above three hypotheses.

Surface Features

There are many similarities between the lunar and Mercurian surfaces. Both are very heavily cratered, with lava plains covering the terrain between craters and with ejecta ray systems accompanying the younger craters. However, *Mariner 10* [88] images revealed important differences. For example, the so-called **lobate scarps** (**rūpes**, Fig. 10)—long lines of

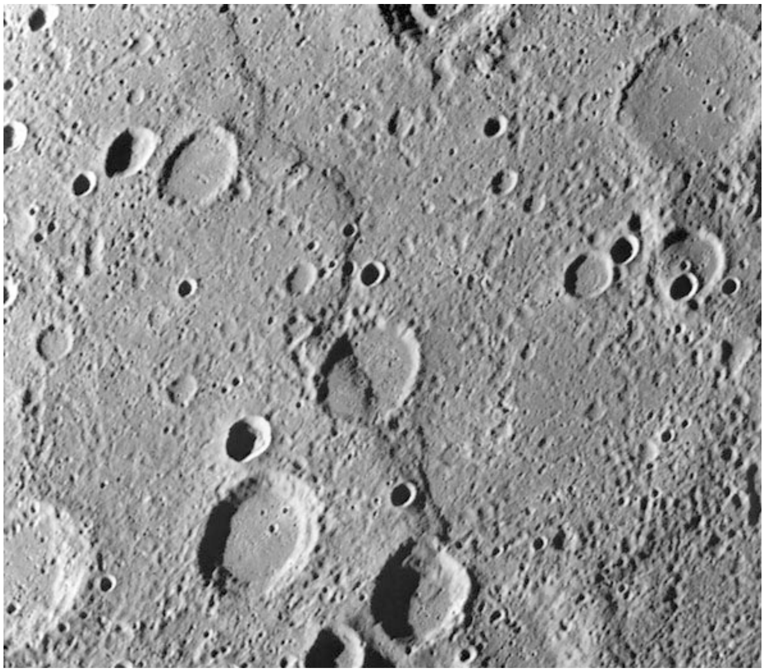


Figure 10. **Lobate scarps** (**rupēs**), such as the one seen here running from the top to the bottom of the image, are a distinctive feature of the Mercurian surface

cliffs that can be hundreds of kilometres long and up to 2 km in height—are found only on Mercury and could represent shrinkage of the mantle and crust, as well as resulting from the cooling and solidification of the core. The lobate scarps mentioned above criss-cross the surface of Mercury and cut through craters—a clear indication that they are younger than the craters [89]. Also, ejecta blankets on the Moon are twice the size of those on Mercury, a possible result of the Moon's surface gravity being half that of Mercury [90]. The most dramatic surface feature on Mercury is undoubtedly the multi-ringed impact feature known as the Caloris basin (Fig. 11), measuring 1550 km across [91]. The impact was so severe that it raised chaotic hilly ('weird') terrain at the antipodal point to the Caloris basin [92]. On a smaller scale are the multi-ringed Tolstoj basin, with a diameter of 400 km and an ejecta blanket stretching 500 km beyond the outer rim, and the Beethoven basin (650 km in diameter and a 500 km ejecta blanket).

There are two types of plains on Mercury, inter-crater plains and wide smooth plains filling impact depressions. Both types of plains have similar albedos (unlike the Moon). The origin of the plains is unknown, but volcanic eruption following the impacts creating the craters is suspected [93,94].

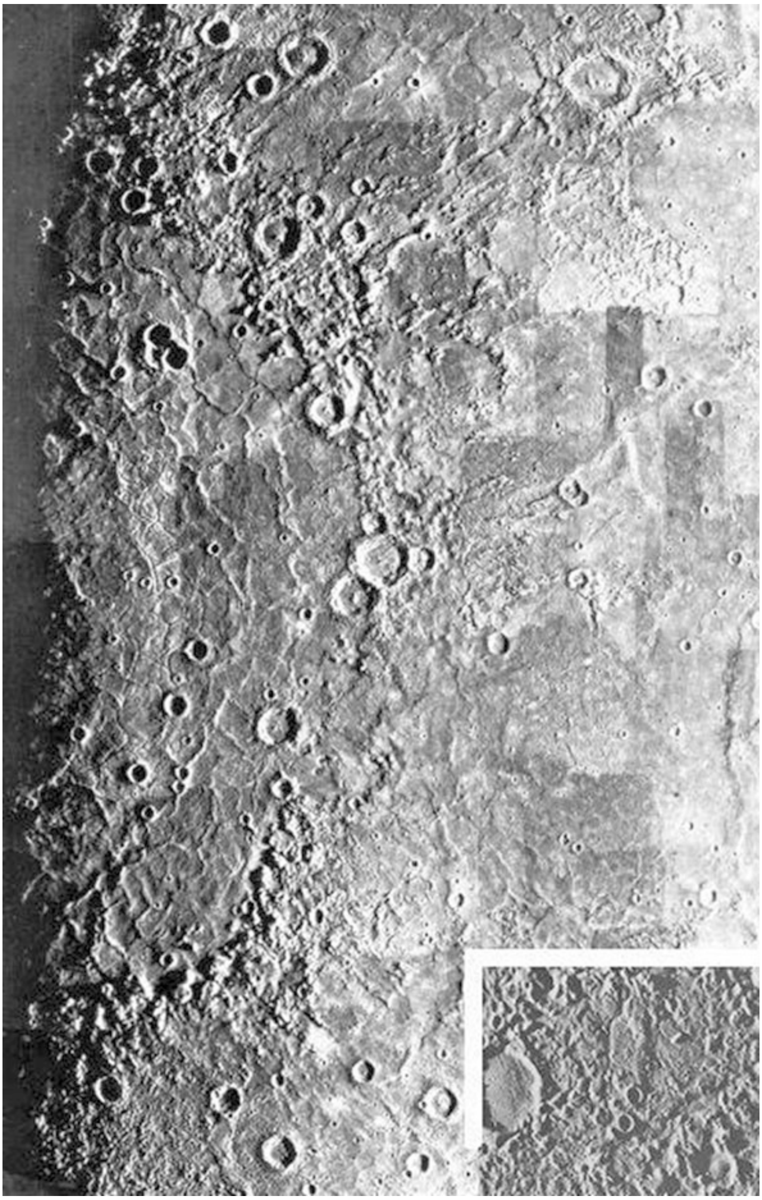


Figure 11. The multi-ringed Caloris basin, one of several large impact features on Mercury. The inset shows **'weird terrain'** at the antipodal point to the Caloris basin. This feature is thought to have been raised by shock waves from the impact that created the Caloris basin

MESSENGER Update: New Evidence for Water Ice

On 2012 November 29, the *MESSENGER* team [111] announced finding that lent strong support to the hypothesis of water ice deposits in the permanently shadowed craters in the polar regions of the planet (The inclination of Mercury's rotational axis is less than a degree from a right angle,

thus making this possible). The team reported an excess of hydrogen at the north pole from measurements made with the probe's Neutron Spectrometer [112]. The spectrometer revealed a layer tens of centimetres thick with a hydrogen content indicating the presence of water. This layer was covered by another layer 10–20 cm in depth with a lower hydrogen content. Surface reflectance of the permanently shadowed north polar crater interiors was measured by the team [113] at 1064 nm and revealed anomalously bright and dark regions that were poleward orientated. The dark regions coincided with areas of high radar backscatter previously measured at Arecibo and the bright regions were consistence with surface deposits of water ice. Other members of the team, led by David Paige of the University of California, Los Angeles, modelled the temperature profile of the surface and near subsurface at Mercury's north polar region using topography obtained with *Messenger*'s Mercury Laser Altimeter [114]. They confirmed that the regions of high radar backscatter tallied with the distribution of water ice predicted by their model. Figure 12 shows an image of the north polar region of Mercury mapped by *MESSENGER*. An Arecibo radar map of several craters is overlaid (shown in yellow). The red-shaded area marks the part of the surface in shadow when the *MESSENGER* images were taken.

Exosphere

Because of its closeness to the Sun, Mercury is a torrid planet whose surface receives between 4.59 and 10.61 times the terrestrial solar constant ($1.370\,\mathrm{W\ m^{-2}}$) [95]. The surface temperature ranges from 100 to 700 K [96], with a mean value of 440 K. Because of the high ellipticity of Mercury's orbit, the subsolar point temperature ranges from 725 K at perihelion to 590 K at aphelion. Since Mercury's axis of rotation is approximately at right angles to the plane of its orbit, there are no seasons on Mercury. A further curious result of this lack of axial tilt is the strong possibility (borne out by radar measurements[5]) that there might be deposits of water ice on the floors of some of the deeper polar craters. The putative ice could originate from outgassing from Mercury's interior or deposition through cometary impacts [99].

The surface gravity of Mercury ($3.70\,\mathrm{m\ s^{-2}}$) is too low for it to have kept an atmosphere: molecules are more likely to escape into space or collide with the surface of the planet than with each other; with a pressure of $\sim 10^{-15}$ bar, Mercury's atmosphere is an **exosphere**. The main constituents of the tenuous Mercurian exosphere are traces of hydrogen, helium, oxygen (this detection might only be an upper bound), sodium, potassium, calcium and magnesium.

[5] Radar observations made with the 70 m Goldstone telescope and the Very Large Array found patches of very high reflection of radar waves, indicative of the presence of water [97]. Higher resolution radar imaging has confirmed that the radar-bright markings are confined to the floors of polar craters [98].

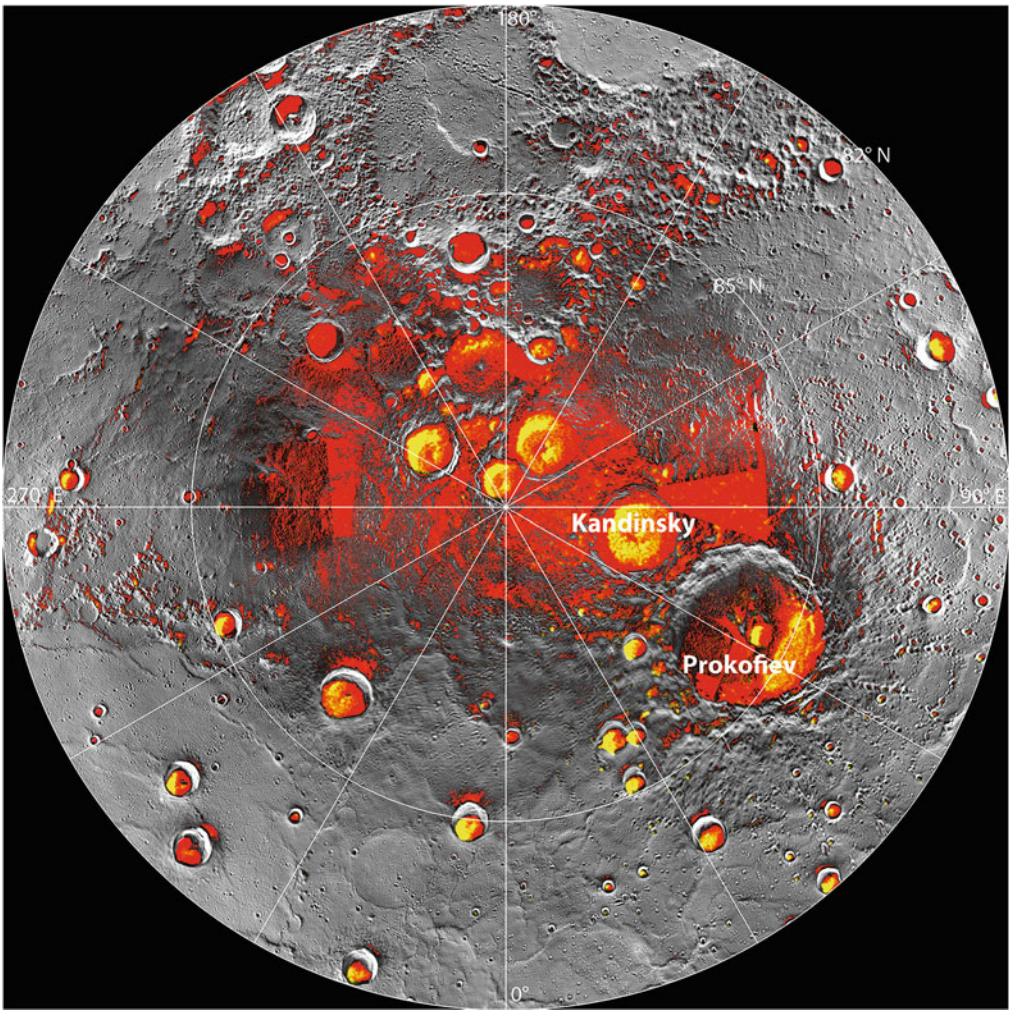


Figure 12. Composite image of *MESSENGER* and Arecibo radar mapping (*yellow*) of the north polar region of Mercury. The *red-shaded area* denotes that part of the surface in shadow when the *MESSENGER* images were acquired (*Reproduced with the permission of NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington/National Astronomy and Ionospheric Center, Arecibo Observatory*)

Magnetic Field and Magnetosphere

Mariner 10, in its first and third flybys, discovered that Mercury has a **magnetosphere** similar to that of the Earth but smaller and—unlike Earth's—almost aligned with the axis of rotation, but pointed southward, as for the Earth [100]. At the subsolar point, the **magnetopause** is located at 1.3 Mercurian radii (R_M) and the **bow shock** (see Fig. 12) at 1.5 R_M

from the centre of Mercury; the magnetosphere normally prevents direct contact of the Mercurian surface with the **solar wind** [101]. Such direct contact between the surface of Mercury and the solar wind, however, does occur episodically when a large part of Mercury's dayside magnetic flux is 'loaded' into Mercury's **magnetotail**. When there is no loading, the north and south magnetic cusps are well separated (Fig. 12); however, for moderate loading, the cusps approach each other and actually unite in a single equatorial cusp when the loading is extreme [102]. This phenomenon was well documented during *MESSENGER*'s third flyby. What is unique about Mercury's magnetosphere is that there is no atmosphere or **ionosphere**, so that currents generated by the solar wind cannot close as they do on other planets with ionospheres, and the magnetosphere is therefore coupled with the solar wind.

The **dipole moment** of Mercury is about 1000 times less than that of the Earth but **solar wind pressure** is about 7 times greater. This combination of circumstances results in a much more compact magnetosphere [103]. On its second flyby, *MESSENGER* met with **magnetic tornadoes** (twisted bundles of **magnetic fields** connecting the Mercurian and interplanetary magnetic fields) [104]. The bundles were 800 km wide and formed when the magnetic field in the solar wind connected to the planet's magnetic field. When this occurs, the twisted **magnetic flux tubes** are then swept along by the solar wind to form vortices and are known as flux transfer events. These events effectively open windows in the planet's magnetic field that allow solar wind particles to impinge directly on the surface of Mercury. *MESSENGER* has found that the **reconnection** rate near Mercury is ten times greater than for Earth, but only a third of the reconnections discovered by *MESSENGER* are accountable in terms of proximity to the Sun [105].

The magnetic field strength of Mercury at the equator is about 300 nT. Two hypotheses are currently in debate concerning the origin of the magnetic field [106]:

1. That the outer part of the iron core of the planet is partially molten, convective and electrically conducting, thus generating the dipolar magnetic field through a **dynamo effect**.
2. The field arises from **remanent magnetism** frozen into the crust.

The *MESSENGER* and *BepiColombo* missions should help to decide which of the two hypotheses is the correct one.

Modern Cartography of Mercury

Pre-*Mariner* maps of Mercury are now of purely historical interest. The atlas section of this gazetteer includes the latest U.S. Geological Survey (hereafter, USGS) maps of Mercury based on the combined databases of the *Mariner 10* and *MESSENGER* MDIS surveys.

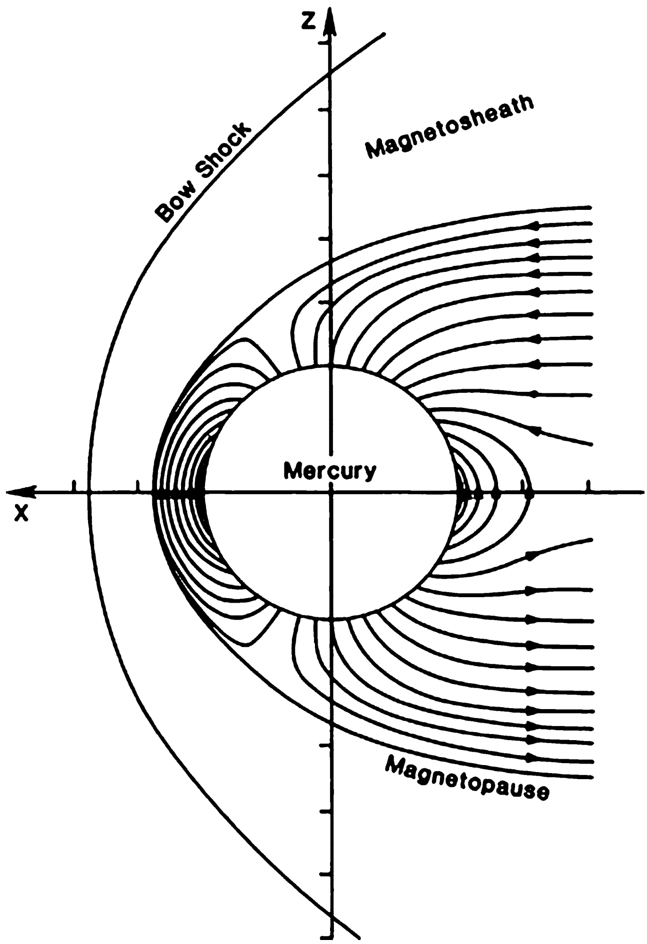


Figure 13. The magnetosphere of Mercury

Since the aim of this gazetteer is to provide a comprehensive treatment of astronomical nomenclature—past and present—we indicate both past and present names of those surface features that have been renamed by the IAU. Currently IAU-approved names are indicated in yellow.

In mapping planetary surfaces, one is confronted with the problem of representing regular spheroidal bodies in a flat plane. Size and shape distortions occur, but different types of projections can minimize these [107,108,109,110]:

1. **Conformal projections** (**Mercator**, **transverse Mercator**, **Lambert conformal conic** and **polar stereographic**) retain the shapes of features
2. **Equal-area projections** distort shapes but retain size and are useful for studies of feature-type distributions

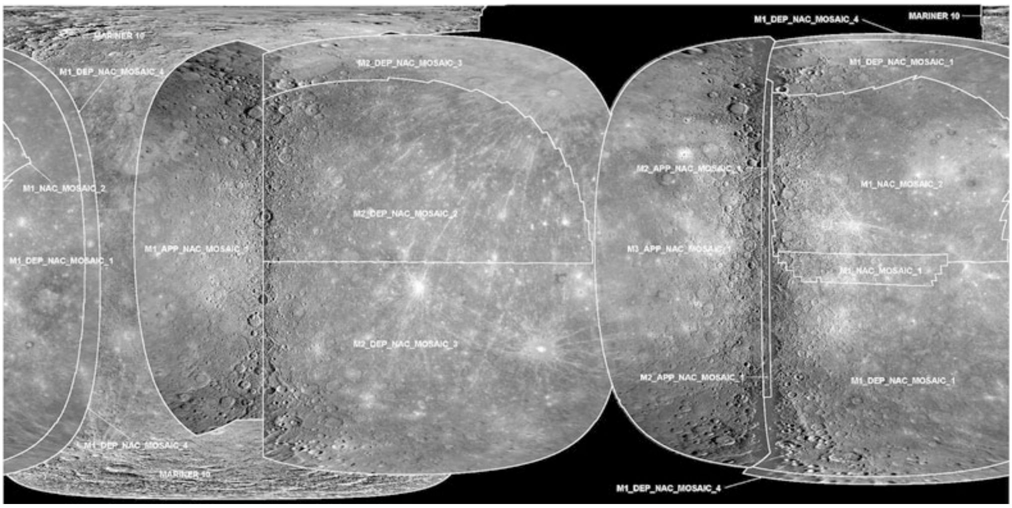


Figure 14. Global mosaic combining *MESSENGER* and *Mariner 10* flyby data

The 1:5 million-scale USGS maps, comprising 15 **quadrangles**, are built on a **base mosaic**, which is a combination of *Mercury 10* and *MESSENGER* MDIS images. The images used were those that best portrayed the named features.

The first reliable map of the surface features of Mercury was compiled from three flybys of *Mariner 10* on 1974 March 29, 1974 September 21 and 1975 March 16. *Mariner 10* mapped a total of 43.01 % of the surface of Mercury during the three encounters. Before orbital insertion, *MESSENGER* also made three flybys of Mercury (2008 January 14, 2008 October 6 and 2009 September 29. Approximately 97.72 % of Mercury's surface was mapped during the flybys, and the final insertion *MESSENGER* into Mercury orbit (achieved on 2011 March 18) has finally provided a complete survey of the entire surface of Mercury.[6]

The base mosaic [108] is built up of *Mariner 10* and *MESSENGER* flyby data, so the resolution of the images, lighting conditions of the Mercurian surface and the speed of the probe with respect to Mercury vary considerably from flyby to flyby. The *Mariner 10* images provided seven 'ground truth' locations for the *MESSENGER* control network. The composite mosaic, with the guidelines indicating the separate *Mariner 10* and *MESSENGER* images is shown in Fig. 14.

The 15 quadrangles into which the USGS divides Mercury are shown in the index map (Fig. 15).

[6]The full survey was not available at the time this volume went into production.

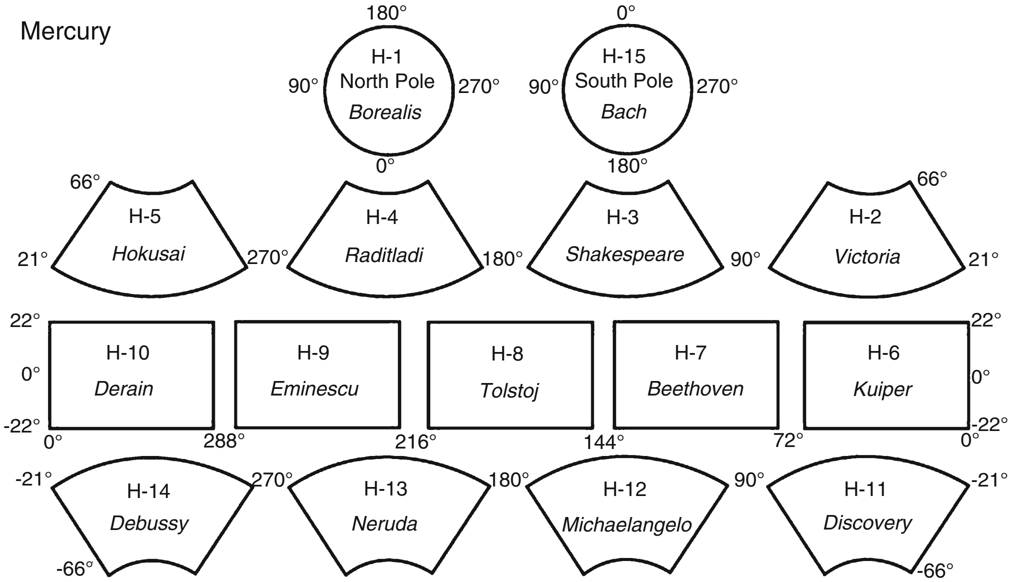


Figure 15. Index chart of 1:5 million Mercury maps

There are five Mercator projections, eight Lambert conformal projections and two stereographic projections. The type of projection for each quadrangle is listed in Table 1.

Table 1. MERCURIAN QUADRANGLES

Quadrangle	*Name*	*Scale*	*Type of projection*
H-1	Borealis (Borea)	1:4 749 000 ((lat. = 90°)	Polar stereographic
H-2	Victoria (Aurora)	1:4 765 000 (lat. = 28° and 62°)	Lambert conformal
H-3	Shakespeare (Caduceata)	1:4 765 000 (lat. = 28° and 62°)	Lambert conformal
H-4	Raditladi (Liguria)	1:4 765 000 (lat. = 28° and 62°)	Lambert conformal
H-5	Hokusai (Apollonia)	1:4 765 000 (lat. = 28° and 62°)	Lambert conformal
H-6	Kuiper (Tricrena)	1:5 000 000 (lat. = 0°)	Mercator
H-7	Beethoven (Solidtudo Lycaonis)	1:5 000 000 (lat. = 0°)	Mercator
H-8	Tolstoj	1:5 000 000 (lat. = 0°)	Mercator
H-9	Eminescu (Solitudo Criophori) (Phaethontias)	1:5 000 000 (lat. = 0°)	Mercator
H-10	Derain (Pieria)	1:5 000 000 (lat. = 0°)	Mercator
H-11	Discovery (Solitudo Hermae Trismegisti)	1:4 765 000 (lat. = −28° and −62°)	Lambert conformal
H-12	Michelangelo (Solitudo Promethei)	1:4 765 000 (lat. = −28° and −62°)	Lambert conformal
H-13	Neruda (Solitudo Persephones)	1:4 765 000 (lat. = −28° and −62°)	Lambert conformal
H-14	Debussy (Cyllene)	1:4 765 000 (lat. = −28° and −62°)	Lambert conformal
H-15	Bach (Australia)	1:4 749 000 (lat. = −90°)	Polar stereographic

Glossary of Terms Used*

airglow
/ˈɛːgləʊ/
(*US* /ˈɛːɹgloʊ/)
Radiation of a planetary atmosphere, caused mainly by the interaction of atoms and molecules in the atmosphere with photons and high energy particles from the Sun.
Dayglow is brought about by the direct interaction of solar photons with the atoms and molecules of a planetary atmosphere. Nightglow is the result of the downward energy transitions of the atoms and molecules. Dayglow is orders of magnitude more intense than nightglow.

albedo feature
/ælˈbiːdəu ˈfiːtʃə/
(*US* /ælˈbiːdoʊ ˈfiːtʃəɹ/)
An extensive area on the surface of a planet or any solid celestial body, discernible by the amount of reflected light.
IAU desgination: AL.

aphelion
/æpˈhiːlɪən, əˈfiːlɪən/
For a body in orbit around the Sun, the point at which the body is farthest from the centre of the Sun.

apoapsis
/æpəʊˈæpsɪs/
(*US* /æpoʊˈæpsɪs/)
The point in an artificial satellite's orbit that is farthest from the centre of the central body.

apsi-s
/ˈæpsɪ-s/ *pl.* **-des** /-diːz/
Either of the two points in an orbit that define the greatest and least distances from the central body.

ascending node
/əˈsɛndɪŋ nəʊd/
(*US* /- noʊd/)
The point in the orbit of a celestial body at which it passes from south to north of a reference plane.
In the case of a planet the reference plane is usually the **ecliptic**. For an artificial satellite, the reference plane could be the equator of a Solar System body.

atmospheric extinction
/ætməsˈfɛrɪk ɛkˈstɪŋkʃən/
The dimming of light emitted by celestial bodies due to scattering of the light by molecules and aerosols, and absorption by molecules in the atmosphere.

attitude
/ˈætɪtjuːd/
The orientation of the axes of a spacecraft with respect to a fixed reference frame.

*The entries in this glossary are meant to serve merely as explanations of the terminology used in this book; they are not intended as formal definitions.

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2_2,

base mosaic
/ˈbɛɪs məʊˈzɛɪɪk/
(*US* /- moʊˈzɛɪɪk/)
A map of Mercury combining the part (43.01 %) of the surface surveyed by *Mariner 10* and the 90.90 % of the surface mapped during the three flybys of *MESSENGER*.
MESSENGER has now made a complete survey of the surface of Mercury.

BELA
/ˈbɛlə/
= **BepiColombo Laser Altimeter** (*q.v.*).

BepiColombo
/ˌbɛpɪkəˈlɔmbəʊ/
(*US* /- kəˈlamboʊ/)
A planned orbital mission to Mercury comprising two separate satellites: the ***Mercury Planet Orbiter*** and the ***Mercury Magnetospheric Orbiter***.
BepiColombo will reach Mercury in 2020 and will operate from September 2020 to September 2021, with a possible extension until 2022.

BepiColombo Laser Altimeter
/- ˈlɛɪzə ælˈtɪmɪtə/
(*US* /- ˈlɛɪzəɹ ælˈtɪmɪtəɹ/)
A laser altimeter to be carried on board the ***Mercury Planet Orbiter*** of the planned ***BepiColombo*** mission.

bow shock
/baʊ ʃɔk/
(*US* /- ʃak/)
A sharp boundary between the **solar wind** and a planetary **magnetosphere** that results in the slowing down of the solar wind in the vicinity the planet, the wind later regaining its initial speed.

Cassegrain telescope
/ˈkæsɪgrɛɪn ˈtɛlɪskəʊp/
(*US* /- ˈtɛlɪskoʊp/)
A **reflecting telescope** consisting of a concave **primary mirror** and a convex **secondary mirror**, and in which the **focus** is located below a hole in the centre of the primary mirror.
Compared to a **Newtonian**, this design is more compact and more easily accommodates the mounting of detection equipment.
The primary mirror is paraboloidal in cross-section and the secondary mirror hyperboloidal.

celestial mechanics
/sɪˈlɛstɪəl mɪˈkænɪks/
A branch of astronomy concerned with the analysis of the motions and positions of celestial bodies and artificial satellites.

chi-squared analysis
/kʌɪ skwɛːd əˈnælɪsɪs/
(*US* /- skwɛːɹd -/)
[*also* **chi-square test**]
A statistical significance test that examines the goodness of fit of a data set to an assumed probability distribution.
If the data are distributed into n bins, then $\chi^2 = \sum_{k=1}^{n} (O_k - E_k)^2 / E_k$, where O_k is the observed kth value and E_k is the expected kth value according to the assumed probability distribution.

conformal projection
/kənˈfɔːməl prəˈʤɛkʃən/
(*US* /kənˈfɔɹməl -/)
A map projection that retains a correct angular representation, and

hence does not distort shapes, over a limited area.

conjunction
/kən'ʤʌŋkʃən/
The alignment, as seen from Earth, of two bodies in the Solar System such that they have the same celestial longitude.

crater
/'krɛɪtə/
(*US* /'krɛɪtəɹ/)
A circular depression on the surface of a planet or any solid celestial body.
IAU designation: AA.

cusp
/kʌsp/
One of the two extreme points of the crescent of the Moon or an **inferior planet**.

Cytherean
/sɪθɪ'riːən/
Of, or pertaining to, the planet Venus.

descending node
/dɪ'sɛndɪŋ nəʊd/
(*US* /- noʊd/)
The point in the orbit of a celestial body at which it passes from north to south of a reference plane.
In the case of a planet the reference plane is usually the **ecliptic**. For an artificial satellite, the reference plane could be the equator of a Solar System body.

descriptor term
/dɪs'krɪptə təːm/
(*US* /dɪs'krɪptəɹ təːɹm/)
A planetary surface feature type in the IAU planetary nomenclature system.
Most named features (except for craters) include the descriptor term in the name (in the case of craters, 'crater' is implicit but unstated).

dipolar magnetic field
/dʌɪ'pəʊlə mæg'nɛtɪk fiːld/
(*US* /dʌɪ'poʊləɹ - -/)
The field generated by a magnetic dipole.
The Earth's magnetic field is approximately dipolar, roughly equivalent to a that of a bar magnet.

dipole moment
/'dʌɪpəʊl 'məʊmənt/
(*US* /'dʌɪpoʊl 'moʊmənt/)
See ***magnetic dipole moment***.

Doppler-spread
/'dɔplə sprɛd/
(*US* /'dapləɹ -/)
In the context of radar measurements of Mercury, the spectral broadening, caused by the planet's rotation, of radar signals received from different parts of the Mercurian surface.

dors-um
/'dɔːsəm/
(*US* /'dɔːɹsəm/)
pl. **-a** /-ə/
A ridge on the surface of a planet or any solid celestial body.
IAU designation: DO.

dwarf planet
/dwɔːf 'plænɪt/
(*US* /dwɔːɹf -/)
In the IAU planetary nomenclature sytem, a celestial body (not a satellite), intermediate in mass between a **principal planet** and a **small solar system body**, orbiting the Sun and with sufficient mass to overcome internal rigid

body forces and assume an approximately spherical shape.

dynamo effect
/ˈdʌɪnəməʊ əˈfɛkt/
(*US* /ˈdʌɪnəmoʊ -/)
A mechanism invoked to explain the origin of the Earth's magnetic field.
Radioactive decay in the Earth's outer core is thought to provoke convective motion in the core's liquid iron in a surrounding weak magnetic field; this combined convective motion and intrinsic magnetic field induce an electric current in the liquid iron. This induced electric current then produces a secondary magnetic field that coalesces with the initial magnetic field to produce a stronger magnetic field roughly aligned with the rotational axis of the Earth.

eccentricity
/ɪksənˈtrɪsɪti/
Of an orbit, the degree to which it diverges from a perfect circle.
More generally, a parameter that determines the shape of a conic section.
Represented by the symbol e. For a circle, $e = 0$ for an ellipse $0 < e < 1$, for a parabola $e = 1$ and for a hyperbola $e > 1$.

ecliptic
/ɪˈklɪptɪk/
The apparent eastward circular path traced during the year by the Sun against the background stars.
More formally, the intersection of the ecliptic plane and the celestial sphere.

elongation
/iːlɔŋˈgɛɪʃən/
(*US* /iːlaŋˈgɛɪʃən/)
The angular separation on the sky of a planet from the Sun.

Energetic Particle and Plasma Spectrometer
/ɛnəˈʤ/ɛtɪk ˈpaːtɪkəl ənd ˈplæzmə spɛkˈtrɔmɪtə/
(*US* /ɛnəɹˈʤ/ɛtɪk ˈpaːɹtɪkəl - - spɛkˈtramɪtəɹ/)
An instrument comprising an energetic particle spectrometer and a fast imaging plasma spectrometer on board the ***MESSENGER*** probe to measure charged particles in the **magnetosphere** of Mercury and charged particles from the surface of the planet.

EPPS
= **Energetic Particle and Plasma Spectrometer** (*q.v.*).

equal-area projection
/ˈiːkwəl ˈɛːrɪə prəˈʤɛkʃən/
A map projection (of a sphere on to a plane) in which areas, but not angles, are accurately represented.

exosphere
/ˈɛksəsfɪə/
(*US* /ˈɛksəsfɪɹ/)
That part of a planet's atmosphere which blends into the interplanetary medium.
The atmosphere of Mercury is an exosphere.

extreme ultraviolet
/ɪkˈstriːm ʌltrəˈvʌɪələt/
The part of the electromagnetic spectrum (10–100 nm) lying between the ultraviolet and X-ray regions.

flyby
/ˈflʌɪbʌɪ/
pl. -s /-z/
In astronautics, a passing encounter of a space probe with a celestial body.

foss-a
/ˈfɔsə/
(*US* /ˈfasə/)
pl. **-ae** /-iː/
A long, narrow depression on the surface of a planet or any solid celestial body.
IAU designation: FO.

Gamma-Ray and Neutron Spectrometer
/ˈgæmə rɛɪ ənd ˈnjuːtrɔn spɛkˈtrɔmɪtə/
(*US* /- - - ˈnjuːtran spɛkˈtramɪtəɹ/)
A spectrometer on board the ***MESSENGER*** probe that measures the numbers and energies of gamma rays and neutrons emanating from the surface of Mercury.
A germanium semiconductor crystal measures electrical pulses deriving from interactions with gamma rays, and scintillators are used to detect neutrons.

Gazetteer of Planetary Nomenclature
/gæzɪˈtɪə əv ˈplænɪtri nəʊˈmɛŋklətʃə/
(*US* /gæzɪˈtɪəɹ av ˈplænɪtəri noʊˈmɛŋklətʃəɹ/)
A database, maintained by the Planetary Geomatics Group of the US Geological Survey Astrogeology Science Center in cooperation with the International Astronomical Union, listing all IAU-approved names for surface features of planetary bodies and ring systems.

general-relativistic precession
/ˈʤɛnərəl rɛlətɪˈvɪstɪk prɪˈsɛʃən/
A residual amount of advance of the **line of apsides** of a planet caused by the Sun's gravitational distortion of the space in the vicinity of the planet. The effect is small and additional to the larger classical effect caused by gravitational perturbations exerted by the other planets.
In the case of the Solar System, the effect is most noticeable for Mercury (43.03″ per year in the direction of motion of the planet).

gibbous
/ˈgɪbəs/
Of the Moon or a planet, having more than half of but less than the whole observer-facing disc illuminated by the Sun.

global mosaic
/ˈgləʊbəl məʊˈzɛɪɪk/
(*US* /ˈgloʊbəl moʊˈʒɛɪɪk/)
A map of Mercury combining images taken by *Mariner 10* and the Mercury Dual Imaging System on board the *MESSENGER* probe.

gravitational field
/grævɪˈtɛɪʃənəl fiːld/
A region of space surrounding a massive body in which the gravitational force of the body is detectable.

gravitational potential well
/- pəˈtɛnʃəl wɛl/
A region in a **gravitational field** inside a higher potential region in which the potential steepens abruptly.

gravitational slingshot
/- ˈslɪŋʃɔt/
(*US* /- ˈslɪŋʃat/)
See ***gravity assist.***

gravity assist
/ˈgrævɪti əˈsɪst/

The use of the **gravitational field** of a planet to alter the **momentum** of a spacecraft during a **flyby**.

great circle
/grɛɪt ˈcəːkəl/
(*US* /- cəːɹkəl/)
A circle inscribed on the surface of a sphere and centred on the centre of the sphere.

greatest eastern elongation
/ˈgrɛɪtɪst ˈiːstən iːlɔŋˈgɛɪʃən/
(*US* /- ˈiːstəɹn iːlaŋˈgɛɪʃən/)
The greatest angular distance between an **inferior planet** and the Sun during a synodic period of the planet when the planet is to the east of the Sun.
This angle varies according to the respective positions of the Earth and planet in their orbits at the time of greatest elongation.

greatest western elongation
/- ˈwɛstən -/
(*US* /- wɛstəɹn -/)
The greatest angular distance between an **inferior planet** and the Sun during a synodic period of the planet when the planet is to the west of the Sun.
This angle varies according to the respective positions of the Earth and planet in their orbits at the time of greatest elongation.

GRNS
= **Gamma Ray and Neutron Spectrometer** (*q.v.*).

heliocentric transfer orbit
/hiːlɪəʊˈsɛntrɪk ˈtraːnsfəː ˈɔːbɪt/
(*US* /hiːlɪoʊˈsɛntrɪk ˈtræːnsfəːɹ ˈɔːɹbɪt/)
Half of an elliptical orbit, centred on the Sun, enabling a spacecraft in orbit around one planet to reach another planet.

inferior conjunction
/ɪnˈfɪərɪə kənʤʌŋkʃən/
(*US* /ɪnˈfɪərɪəɹ -/)
The **conjunction** of an **inferior planet** when it is located between the Earth and the Sun.

inferior planet
/ɪnˈfɪərɪə ˈplænɪt/
(*US* /ɪnˈfɪərɪəɹ -/)
A planet whose distance from the Sun is inferior to that of the Earth.
There are two inferior planets: Mercury and Venus.

infrared radiometer
/ɪnfrəˈrɛd rɛɪdɪˈɔmɪtə/
(*US* /- rɛɪdɪˈamɪtəɹ/)
A device that measures the amount of infrared radiation received from an object.
The infrared part of the electromagnetic spectrum ranges from about 1 to 300 µm.

ionosphere
/ʌɪˈɔnəsfɪə/
(*US* /ʌɪˈanəsfɪəɹ/)
A layer of the atmsophere of a planet or other body in which solar X-rays and ultraviolet radiation ionize atmospheric molecules, producing roughly equal amounts of free electrons and ions.
Apart from the Earth, ionospheres have been found on a number of other Solar System bodies, including Venus, Mars, the gas giants, the Jovian satellite Io, the Saturnian satellite Titan, the Neptunian satellite Triton and several comets.

ISA
= **Italian Spring Accelerometer** (*q.v.*).

Italian Spring Accelerometer
/ɪˈtælɪən sprɪŋ æksɛləˈrɔmɪtə/
(*US* /- - æksɛləˈramɪtəɹ/)
An instrument on board the ***Mercury Planet Orbiter*** of the planned ***BepiColombo*** mission to measure non-gravitational accelerations that need to be taken into account in the mission's gravimetry, rotation and general relativity experiments.

Lambert conformal projection
/ˈlæmbət kənˈfɔːməl prəˈʤɛkʃən/
(*US* /ˈlæmbəɹt kənˈfɔːɹməl -/)
[*also* **Lambert conformal conic projection**]
A **conformal projection** in which meridians are straight lines converging at a pole and parallels of latitude appear as concentric circles.
Named after the Swiss mathematician and physicist J. H. Lambert (1728–1777).
A cone is placed such that its axis coincides with that of the globe being mapped, with two reference parallels secant to and intersecting the body. There is no distortion at the reference parallels and increasing distortion with increasing distance from the reference parallels. The conformal nature of the projection ensures that angles are preserved.

libration
/lɪbˈrɛɪʃən/
An apparent nodding and wobbling of the Moon that causes 59 % of its surface to be visible over time.
The Moon's **sidereal period** is equal to its rotational period, but the elliptical shape of the orbit, its inclination to the ecliptic and the rotation of the Earth produce libration in longitude, libration in latitude and diurnal libration.
The slightly irregular shape of the Moon results in small variations of the rotation of the Moon on its axis, an effect known as physical libration.

line of apsides
/lʌɪn əv ˈæpsɪdiːz/
The straight line joining the **periapsis** and **apoapsis** of an elliptical orbit.

lobate scarp
/ˈləʊbɛɪt skaːp/
(*US* /loʊbɛɪt skaːɹp/)
A long line of cliffs with scalloped edges.
On Mercury, they are termed **rupēs** and are attributed to thrust faults arising from shrinkage of the planet's crust.

MAG
/mæg/
= **²Magnetometer** (*q.v.*).

magnetic dipole moment
/mægˈnɛtɪk ˈdʌɪpəʊl ˈməʊmənt/
(*US* /- ˈdʌɪpoʊl ˈmoʊmənt/)
The product of the strength of the poles of a dipolar magnet and the distance separating them.

magnetic field
/- fiːld/
A region of space permeated by magnetic forces.

magnetic flux
/- flʌks/
The product of a given area and the average **magnetic induction** over the area and at a right angle to it.

The total magnetic flux, $\Phi = \int \boldsymbol{B} \cdot d\boldsymbol{A}$, where $\boldsymbol{B}$ is the **magnetic induction** and $\boldsymbol{A}$ is the area.

magnetic flux tube
/- - tjuːb/
A cylindrical region of space containing a **magnetic field** with its field lines parallel to the surface of the cylinder.

magnetic tornado
/- tɔːnɛɪdəʊ/
(*US* /- tɔːɹnɛɪdoʊ/)
[*also* **flux transfer event**]
A twisted bundle of **magnetic fields** and **plasma**.

¹magnetometer
/mægnɪˈtɔmɪtə/
(*US* /mægnɪˈtamɪtəɹ/)
An instrument that measures **magnetic field** strength and direction.

²Magnetometer
A **¹magnetometer** mounted on a 3.6-metre-long boom on board ***MESSENGER*** to measure the magnetic field of Mercury.

magnetopause
/mægˈniːtəʊpɔːz/
(*US* /mægˈniːtoʊpɔːz/)
The boundary separating a **magnetosphere** from the **solar wind**.

magnetosphere
/mægˈniːtəʊsfɪə/
(*US* /mægˈniːtoʊsfɪəɹ/)
A region of space in which a planet's magnetic field predominates over external magnetic fields

magnetotail
/mægˈniːtəʊtɛɪl/
(*US* /mægˈniːtoʊtɛɪl/)
The elongated part of a planet's magnetosphere that trails away from the planet in the direction of the solar wind.

¹major axis
/ˈmɛɪʤə ˈæksɪs/
(*US* /ˈmɛɪʤəɹ -/)
The longest diameter of an ellipse.

²major axis
The **line of apsides** of an elliptical orbit.

Mariner 10
/ˈmærɪnə tɛn/.
(*US* /ˈmærɪnəɹ -/)
[*also* **Mariner Venus Mercury 1973**]
The first spacecraft to visit Mercury and the first to return close-up pictures of Mercury and Venus.
Primarily designed to investigate the environment, surface and atmosphere of Mercury, the probe mapped 43.01 % of Mercury's surface, thus providing the first definite information on the planet's surface features.
Launched on 1973 Nov 3, *Mariner 10* made three flybys of Mercury on 1974 Mar 29, 1974 Sep 21 and 1975 Mar 16.

MASCS
= **Mercury Atmospheric and Surface Composition Spectrometer** (*q.v.*).

mass
/mæs/
The amount of material in a body that determines its resistance to change in motion and its mutual

gravitational attraction to other bodies.

maximum eastern elongation
/ˈmæksɪməm ˈiːstən iːlɔŋˈgeɪʃən/
(*US* /- ˈiːstəɹn -/)
The greatest possible **elongation** of an **inferior planet** when it is visible after sunset.
In the case of mercury maximum eastern elongation is 27° 45′ in April and **maximum western elongation** (in September) is 17° 50′. The values are so divergent owing to the high ellipticity and inclination of the orbit of Mercury.

maximum western elongation
/- ˈwɛstən -/
(*US* /- ˈwɛstəɹn -/)
The greatest possible **elongation** of an **inferior planet** when it is visible before sunset.

MDIS
/ɛm diː ʌɪ ˈɛs/
= **Mercury Dual Imaging System** (*q.v.*).

MDM
/ɛm diː ɛm/
= **Mercury Dust Monitor** (*q.v.*).

Mercator projection
/məːˈkɛɪtə prəˈʤɛkʃən/
(*US* /məːɹˈkɛɪtəɹ -/)
A cylindrical projection of a globe in which the cylinder touches the circumference of the globe (at the equator for practical mapping purposes), and in which straight segments represent ‘rhumb lines’, or ‘loxodromes’ (lines of constant course).
For small objects this projection is conformal (i.e. shape and angle are preserved), but areal distortion increases with increasing latitude.
First presented in 1569 by Gerardus Mercator, a Flemish geographer and cartographer.

Mercury Atmospheric and Surface Composition Spectrometer
/ˈməːkjʊrɪ ætməsˈfɛrɪk ənd səːfɪs kɔmpəˈzɪʃən spɛkˈtrɔmɪtə/
(*US* /ˈməːɹkjʊrɪ - - səːɹfɪs kampəˈzɪʃən spɛkˈtramɪtəɹ/)
A spectrometer on board the ***MESSENGER*** probe designed to determine the abundance of gases in the atmosphere of Mercury and identify minerals on its surface.
MASCS comprises two instruments: an ultraviolet and visible spectrometer (UVVS) and a visible and infrared spectrometer (VIRS).
The UVVS studies Mercury’s exosphere and measures its ionized components. The VIRS analyses surface titanium- and iron-bearing materials.

Mercury Dual Imaging System
/- ˈdjuːəl ˈɪmɪʤɪŋ ˈsɪstəm/
An imaging system on board the *MESSENGER* probe consisting of a wide-angle camera (WAC; field of view: 10.5° × 10.5°) and a narrow-angle camera (NAC; field of view: 1.5° × 1.5°), both producing 1024 × 1024 pixel images.
Since the Mercurian orbit of *MESSENGER* is highly elliptical, with periapsis in the northern hemisphere and apoapsis in the southern hemisphere, for the global map of Mercury the WAC will map the northern hemisphere and the NAC, the southern hemisphere.
The NAC is monochromatic (650–850 nm) and the WAC operates in the visible and near-infrared (430–1020 nm with 12 filters.

Mercury Dust Monitor
/- dʌst ˈmɔnɪtə/
(*US* /- - ˈmanɪtəɹ/)
An instrument on board the ***Mercury Magnetospheric Orbiter*** of the planned ***BepiColombo*** mission for measuring the distribution and dynamics of dust in the vicinity of Mercury.

Mercury Gamma-Ray and Neutron Spectrometer
/- ˈgæmə rɛɪ ənd njuːtrɔn spɛkˈtrɔmɪtə/
(*US* /- - - njʊːtran spɛkˈtramɪtəɹ/)
A **spectrometer** to be flown on board the ***Mercury Planet Orbiter*** of the planned ***BepiColombo*** mission in order to study the composition of the upper part of Mercury's crust and to search for water ice deposits in polar craters by measuring gamma-rays and neutrons produced by cosmic rays impacting the surface of the planet.

Mercury Laser Altimeter
/- ˈlɛɪzə ælˈtɪmɪtə/
(*US* /- ˈlɛɪzəɹ ælˈtɪmɪtəɹ/)
An instrument on board the ***MESSENGER*** probe that uses a laser transmitter and receiver to map the surface relief of the northern hemisphere of Mercury.
The travel time of the emitted and reflected laser light (divided by two) is converted into distances, from which heights above datum level are deduced.

Mercury Magnetospheric Orbiter
/- mægniːtəʊˈsfɛrɪk ˈɔːbɪtə/
(*US* /- mægniːtoʊˈsfɛrɪk ˈɔːɹbɪtəɹ - - oʊ/)
A probe designed to orbit Mercury as part of the planned ***BepiColombo*** mission in order to measure the planet's intrinsic magnetic field with high accuracy, explore the characteristics of the magnetosphere, monitor variations in the thin atmosphere of the planet and explore interplanetary space near the Sun.
The *MMO* will host five experiments: a magnetometer, a plasma particle experiment, a plasma wave experiment, a spectral imager for studying the sodium atmosphere of the planet and a dust monitor.

Mercury Orbiter Radio-science Experiment
/- - ˈrɛɪdɪəʊ ˈsʌɪəns ɛkˈspɛrɪmənt/
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to study the gravity field and core of Mercury.

Mercury Planet Orbiter
/- ˈplænɪt -/
A probe designed to orbit Mercury as part of the planned ***BepiColombo*** mission in order to study the detailed characteristics of the planet.
The *MPO* will host 11 experiments: a laser altimeter, an accelerometer, a magnetometer, radiometer and thermal imaging spectrometer, a gamma-ray and neutron spectrometer, an imaging X-ray spectrometer, a Ka-band transponder for radio science, an ultraviolet spectrometer, an ionized and neutral particle analyser, an infrared and visible high-resolution stereoscopic camera, and a solar monitor.

Mercury Plasma Particle Experiment
/- ˈplæzmə ˈpaːtɪkəl ɛkˈspɛrɪmənt/
(*US* /- - ˈpaːɹtɪkəl -/)

A suite of instruments to be carried on board the ***Mercury Magnetospheric Orbiter*** of the ***BepiColombo*** mission and comprising two electron analysers, an ion analyser, a mass spectrum analyser, and high-energy particle instruments for electrons, ions and neutral particles.

Mercury's Imaging X-ray Spectrometer
/ˈməːkjərɪz ˈɪmɪʤɪŋ ˈɛksrɛɪ spɛkˈtrɔmɪtə/
(*US* /ˈməːɹkjərɪz - - spɛkˈtramɪtəɹ/)
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to measure X-ray emission from the surface and magnetosphere of Mercury.

Mercury's Sodium Atmosphere Interferometer
/- ˈsəʊdɪəm ˈætməsfɪə ɪntəfəˈrɔmɪtə/
(*US* /- ˈsoʊdɪəm ˈætməsfɪəɹ ɪntəfəˈramɪtəɹ/)
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to study the planet's exosphere, how it couples to the magnetosphere, and how the exosphere is bounded by the planetary surface, interplanetary space and the solar wind.

Mercury Thermal Infrared Imaging Spectrometer
/- ˈθəːməl ɪnfrəˈrɛd ˈɪmɪʤɪŋ spɛkˈtrɔmɪtə/
(*US* /- ˈθəːɹməl - - spɛkˈtramɪtəɹ/)
An infrared (7–14 µm) **spectrometer** to be carried on board the ***Mercury Planet Orbiter*** of the planned ***BepiColombo*** mission for studying the surface composition, identifying rock-forming minerals, and studying the surface temperature and **thermal inertia** of Mercury.

[1]meridian
/məˈrɪdɪən/
A **great circle** passing through the north and south poles of a planet and defining **planetographic longitude** on its surface.

[2]meridian
A **great circle** passing through the observer's **zenith**, and the north and south celestial poles.

MERMAG-M/MGF
/ˈməːmæg ɛm/
(*US* /ˈməːɹmæg/)
= MMO **Magnetometer**/Magnetometer Fluxgate (*q.v.*).

MERMAG-P
= MPO Magnetometer (*q.v.*).

MERTIS
= **Mercury Thermal Imaging Spectrometer** (*q.v.*).

MESSENGER
/ˈmɛsɪnʤə/
(*US* /ˈmɛsɪnʤəɹ/)
The NASA ***MErcury Surface, Space ENvironment GEochemistry, and Ranging*** spacecraft, designed to map the surface and study the environment of Mercury.
Launched on 2004 August 3, the probe has made one flyby of Earth, two of Venus and three of Mercury. On 2011

March 18, *MESSENGER* was inserted into orbit around Mercury, where it is now producing a complete detailed survey of the surface.

MGNS
/ɛm ʤiː ɛn ɛs/
= **Mercury Gamma-Ray and Neutron Spectrometer** (*q.v.*).

MIXS
= **Mercury Imaging X-ray Spectrometer** (*q.v.*).

MLA
/ɛm ɛl ɛɪ/
= **Mercury Laser Altimeter** (*q.v.*).

MMO
/ɛm ɛm əʊ/
(*US* /- - oʊ/)
= ***Mercury Magnetospheric Orbiter*** (*q.v.*).

MMO Magnetometer
/- mægnɪˈɔmɪtə/
(*US* /- mægnɪˈɔmɪtəɹ/)
An instrument to be placed on board the ***Mercury Magnetospheric Orbiter*** of the ***BepiColombo*** mission and designed to investigate the formation and dynamics of the **magnetosphere** of Mercury, characterize the **magnetic field** of the planet, and examine the **solar wind** and dynamics of the inner **heliosphere**.

mon-s
/mɔnz/
(*US* /manz/)
pl. **-tes** /ˈmɔntɛz/ (*US* /ˈmantɛz/)
A mountain on the surface of a planet or any solid celestial body. IAU designation: MO.

MORE
/mɔː/
(*US* /mɔːɹ/)
= **Mercury Orbiter Radio-science Experiment** (*q.v.*).

MPO
/ɛm piː əʊ/
(*US* /- - oʊ/)
= ***Mercury Planet Orbiter*** (*q.v.*).

MPO Magnetometer
/ɛm piː əʊ mægnɪˈtɔmɪtə/
(*US* /- - oʊ mægnɪˈtɔmɪtəɹ/)
An instrument to be placed on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission, and designed to make detailed measurements of the **magnetic field** of Mercury with the aim of characterizing the evolution and present state of the planet's interior.

MPPE
= **Mercury Plasma Particle Experiment** (*q.v.*).

MSASI
= **Mercury's Sodium Atmosphere Interferometer** (*q.v.*).

node
/nəʊd/
(*US* /noʊd/)
Either of two points marking the intersection of an **orbit** with a reference plane (for example, the **ecliptic** in the case of a planet, or the equator of the parent planet in the case of a satellite).

The node through which a body passes from south to north of the reference plane is called the **ascending node** and the node through which the body passes north to south is the **descending node**.

obliquity
/əˈblɪkwɪti/
The inclination of the equatorial plane of a celestial body with respect to the ecliptic plane.

occultation
/ɔkəlˈtɛɪʃən/
(*US* /akəlˈtɛɪʃən/)
The partial or complete covering of a celestial body by a nearer one of larger apparent size.

opposition
/ɔpəˈzɪʃən/
(*US* /apəˈzɪʃən/)
An arrangement of the Earth and a **superior planet** such that the planet crosses the observer's meridian at local midnight.
The planet's celestial longitude, as measured from the Earth, is 180° at the moment of opposition.

orbit
/ˈɔːbɪt/
(*US* /ˈɔːɹbɪt/)
The path of a secondary celestial body around a more massive central body.
In the limiting case of a two-body system with a central body of great mass and a pointlike secondary body, the latter may describe a circular ($e = 0$), elliptical ($0 < e < 1$), parabolic ($e = 1$) or hyperbolic ($e > 1$) orbit, where e is the eccentricity of the orbit. In such ideal cases, circular and elliptical orbits are closed, whereas parabolic and hyperbolic orbits are open. In reality, tidal effects and perturbations from other bodies prevent orbits from being closed.

orbital period
/ˈɔːbɪtəl ˈpɪərɪəd/
(*US* /ˈɔːɹbɪtəl -/)
The time taken for a celestial body to complete a revolution about another celestial body.
The **sidereal period** is the time taken for a body to return to the same position with respect to the background stars. The **synodic period** is the time interval between successive displays of the same **phase** as seen from a third body orbiting the central body.

periapsis
/pɛrɪˈæpsɪs/
The point of closest approach of a celestial body in orbit around another.

perihelion
/pɛrɪˈhiːlɪən/
The point of closest approach of a planet, asteroid, comet or space probe to the Sun.

phase
/fɛɪz/
The illuminated fraction of the disc of a planet or satellite as seen from a given point in space.

PHEBUS
/ˈfiːbəs/
= **Probing Hermean Exosphere by Ultraviolet Spectroscopy** (*q.v.*).

[1]planet
According to Resolution B.5 of the International Astronomical Union,

a celestial body (a) in orbit around the Sun, (b) with sufficient mass for hydrostatic equilibrium to prevail over its internal rigid body forces (i.e. for the body to be round) and (c) that has dynamically cleared the neighbourhood of its orbit.
Since the 2006 General Assembly of the IAU, this has been the working definition within the planetary nomenclature system of the IAU. According to Resolution B.6 of 2006, Pluto was reclassified as a **dwarf planet**.

²planet
A non-luminous celestial body, intermediate in mass between an asteroid and a brown dwarf, in orbit around a star.
Traditionally divided into major planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto) and minor planets (asteroids). In 2006, the International Astronomical Union made sense one the official basis for its planetary nomenclature system.

³planet
/ˈplænɪt/
Traditionally, any one of Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune or Pluto.

planetographic longitude
/plæniːtəʊˈgræfɪk ˈlɔnʤɪtjuːd, ˈlɔŋg-/
(*US* /- ˈlanʤɪtjuːd, ˈlaŋg-/)
The angular distance between a meridian passing through a point on a planetary body and a reference meridian on the same body.

planiti-a
/pləˈnɪʃə/
pl. **-ae**.
A low plain on the surface of a planet or any solid celestial body.
IAU designation: PL.

plasma
/ˈplæzmə/
The fourth state of matter, comprising a gas of **electrons** and **ions**.

Plasma Wave Investigation
/- wɛɪv ɪnvɛstɪˈgɛɪʃən/
An instrument to be carried on board the ***Mercury Magnetospheric Orbiter*** of the ***BepiColombo*** mission and designed to study plasma waves in the magnetosphere of Mercury.

polar stereographic projection
/ˈpəʊlə ˌstɛrɪəˈgræfɪc prəˈʤɛkʃən/
(*US* /ˈpoʊləɹ -/)
In cartography, a projection of a globe onto a plane tangential and normal to one of the poles of the globe.
Meridians are represented as straight segments converging on the pole of projection and parallels of latitude are represented as circles concentric on the pole of projection. Rhumb lines and **great circles** are concave towards the pole of projection.
The projection is conformal (i.e. angles are preserved), but neither distance nor area is preserved.

primary planet
/ˈprʌɪməri ˈplænɪt/
A planet that orbits a star (as opposed to a secondary planet, or satellite, which orbits a primary planet.

Probing Hermean Exosphere by Ultraviolet Spectroscopy
/ˈprəʊbɪŋ ˈhəːmɪən ˈɛksəsfɪə bʌɪ ʌltrəˈvʌɪələt spɛkˈtrɔskəpi/
(*US* /ˈproʊbɪŋ ˈhəːɹmɪən ˈɛksəsfɪəɹ - - spɛkˈtraskəpi/)
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to explore the composition and dynamics of Mercury's exosphere.

promontori-um
/prɔmənˈtɔːrɪəm/
(*US* /pramənˈtɔrɪəm/)
pl. **-a** /-ə/
A headland-type feature on the surface of the Moon.

PWI
/piː ˈdʌbəljuː ʌɪ/
= **Plasma Waves Investigation** (*q.v.*).

quad
/kwɔd/
(*US* /kwad/)
Abbrev. **quadrangle** (*q.v.*).

quadrangle
/ˈkwɔdræŋgəl/
(*US* /ˈkwadræŋgəl/)
In cartography, a four-sided map. Depending on the type of projection used, a quadrangle may be bounded by four straight segments (as in a **Mercator projection**) or by two non-parallel longitude lines and two curved latitude lines (as in a **Lambert conformal conic projection**).

quadrature
/ˈkwɔdrətʃə/
(*US* /ˈkwadrətʃʊːɹ/)
The aspect, as viewed from Earth, of the Moon or a planet when its angular distance from the Sun is 90°.

radiation pressure
/rɛɪdɪˈɛɪʃən ˈprɛʃə/
(*US* /- ˈprɛʃəɹ/)
The pressure exerted by **electromagnetic radiation** on the surface of a body.

radiometer
/rɛɪdɪˈɔmɪtə/
(*US* /rɛɪdɪˈamɪtəɹ/)
An instrument for measuring radiant energy, usually in the **infrared** region of the **electromagnetic spectrum**.

reconnection
/riːkəˈnɛkʃən/
A process in which the **magnetic field** lines in a **plasma** are broken and spliced with oppositely directed magnetic field lines, resulting in the conversion of magnetic energy into kinetic and thermal energy, and the acceleration of particles in the plasma.

refractor
/rɪˈfræktə/
(*US* /rɪˈfræktəɹ/)
[*also* **refracting telescope**]
An optical telescope that uses an lens objective to form an image, which is then magnified by a smaller eyepiece lens.

remanent magnetism
/ˈrɛmənənt ˈmægnɪtɪzəm/
[*also* **remanence**]
The magnetism remaining in a body in the absence of external magnetism.

rotation period
/rəʊˈtɛɪʃən ˈpɪərɪəd/
(*US* /roʊtɛɪʃən -/)
The time taken for a celestial body to rotate completely on its axis with respect to the background stars.

rup-es
/ˈruːpɪs/
pl. **-ēs** /ˈruːpɛɪz/.
A scarp on the surface of a planet or any solid celestial body.
IAU designation: RU.

Search for Exospheric Refilling and Emitted Natural Abundances
/səːtʃ fə ɛksəˈsfɛrɪk riːˈfɪlɪŋ ənd ɪˈmɪtɪd ˈnætʃərəl əˈbʌndənsɪz/
(*US* /səːɹtʃ fəɹ - - - - - -/)
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to study the gaseous interaction of the planet's surface with its exophere and magnetosphere, and with the solar wind.

SERENA
/səˈriːnə/
= **Search for Exospheric Refilling and Emitted Neutral Abundances** (*q.v.*).

sidereal day
/sʌɪˈdɪərɪəl dɛɪ/
The time taken for a celestial body to rotate fully on its axis with respect to the background stars.

sidereal orbital period
/- ɔːbɪtəl pɪərɪd/
(*US* /- ɔːɹbɪtəl -/)
The time taken for a planet to complete an orbit with respect to the background stars.

sidereal period
= **sidereal orbital period** (*q.v.*) or **sidereal rotation period** (*q.v.*).

sidereal rotation period
/- rəʊˈtɛɪʃən -/
(*US* /- roʊˈtɛɪʃən -/)
The time taken for a celestial body to rotate fully on its axis with respect to the background stars.

SIMBIO-SYS
/sɪmbɪˈəʊsɪs, sɪmbʌɪˈəʊsɪs/
(*US* /sɪmbɪˈoʊsɪs, sɪmbʌɪˈoʊsɪs/)
= **Spectrometers and Imagers for MPO BepiColombo Integrated Observatory System** (*q.v.*).

sinus
/ˈsaɪnəs/
pl. **-ūs** /ˈsaɪnjuːs/
A small plane on the surface of a planet or any solid celestial body.
IAU designation: RU.

SIXS
= **Solar Intensity X-ray and particle Spectrometer** (*q.v.*).

small solar system body
/smɔːl ˈsəʊlə ˈsɪstəm ˈbɔdi/
(*US* /- ˈsoʊləɹ - ˈbadi/)
In the planetary nomenclature system of the International Astronomical Union, an object orbiting the Sun that is neither a [1]**planet** nor a **dwarf planet**.

solar day
/ˈsəʊlə dɛɪ/
(*US* /ˈsoʊləɹ -/)
The time interval between successive passages of the Sun

through a given planetographic [1]**meridian**.

Solar Intensity X-ray and particle Spectrometer
/ˈsəʊlə ɪnˈtɛnsɪti ˈeksrɛɪ ənd ˈpaːtɪkəl spɛkˈtrɔmɪtə/
(*US* /ˈsəʊləɹ - - - paːɹtɪkəl spɛkˈtramɪtəɹ/)
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to provide continuous monitoring of solar X-rays and particles.

solar wind
/- wɪnd/
A stream of ionized particles emanating from the solar corona and carried radially outward into the interplanetary medium.
The main constituents of the solar wind are protons and electrons.

solitudo
/sɔlɪˈtjuːdəʊ/
(*US* /salɪˈtjuːdoʊ/)
A type of albedo feature on Mercury.
The term is not part of the IAU nomenclature system and is not applied to any other planet.

spectrometer
/spɛkˈtrɔmɪtə/
(*US* /spɛkˈtramɪtəɹ/)
An instrument that analyses electromagnetic radiation by dispersing it into its constituent wavelengths over a given range of the spectrum and produces electronically measured output of wavelength and intensity.

Spectrometers and Imagers for MPO BepiColombo Integrated Observatory System
/-z ənd ɪmɪʤəz fə ɛm piː əʊ bɛpicəˈlɔmbəʊ ˈɪntɪgrɛɪtɪd əbˈzəːvətri ˈsɪstəm/
An instrument to be carried on board the ***Mercury Planet Orbiter*** of the ***BepiColombo*** mission and designed to undertake a colour and stereo examination of the planet's surface geology, including its volcanism, tectonics, age, composition and geophysics.

spin–orbital resonance
/spɪn ˈɔːbɪtəl ˈrɛzənəns/
(*US* /- ˈɔɹbɪtəl -/)
A tidally induced proportional relationship between the orbital and rotational periods of a planet or satellite.

subsolar point
/sʌbˈsəʊlə pɔɪnt/
(*US* /sʌbˈsəʊləɹ -/)
A point on the sunward-facing surface of a celestial body that is closest to the Sun, so that the Sun is in the zenith at that point.

superior conjunction
/sjuːˈpɪərɪə kənˈʤʌŋkʃən/
(*US* /suːˈpɪəriːəɹ -/)
A **conjunction** in which an **inferior planet** and the Earth are on opposite sides of the Sun.

superior planet
/sjuːˈpɪərɪə ˈplænɪt/
(*US* /suːˈpɪəriːəɹ -/)
A planet in the Solar System whose distance from the Sun is greater than that of the Earth.
Traditionally, the superior planets are Mars, Jupiter, Saturn, Uranus,

Neptune and Pluto. In 2006, the IAU reclassified Pluto as a **dwarf planet**.

synodic period
/sʌɪˈnɔdɪk ˈpɪərɪəd/
(*US* /sʌɪˈnadɪk -/)
The time interval between successive occurrences of the same configuration of the Sun and a planet, or of a planet and a satellite, as seen from a third body.

thermal inertia
/ˈθəːməl ɪˈnəːʃə/
(*US* /ˈθəːɹməl ɪˈnəːɹʃə/)
A property governing temperature variations on a planetary surface and determined by the physical properties of the surface material.

tidal friction
/ˈtʌɪdəl ˈfrɪkʃən/
A force exerted differentially on the bulk of a celestial body by another that causes it to slow its rate of rotation.

tidal locking
/ˈtʌɪdəl ˈlɔkɪŋ/
(*US* /- ˈlakɪŋ/)
A state of spin–orbital resonance brought about by tidal forces.
In the case of the Earth–Moon system, tidal locking produced the Moon's synchronous rotation (a 1:1 resonance), resulting in the Moon's rotational period being equal to its orbital period so that the Moon always shows the same face to the Earth. In the case of Mercury, tidal locking has produced a 3:2 spin–orbit resonance.

tidally locked rotation
/-li lɔkt rəʊˈtɛɪʃən/
(*US* /- lakt -/)
= **tidal locking** (*q.v.*).

torque
/tɔːk/
(*US* /tɔːɹk/)
A force that produces a turning effect.
For a rigid body, the torque is the product of the angular acceleration and moment of inertia about the axis of rotation.

[1]transit
/ˈtraːnsɪt/
(*US* /ˈtrænsɪt/)
The passage of an **inferior planet** across the disc of the Sun.

[2]transit
The passage of a planetary satellite or its shadow across the central **meridian** of the planet.

[3]transit
The passage of a celestial body across the local **meridian** of an observer.

transverse Mercator projection
/transˈvəːs məˈkɛɪtə prəˈʤɛkʃən/
(*US* /trænsˈvəːɹs məɹˈkɛɪtəɹ -/)
A cylindrical projection of a globe in which the cylinder touches the circumference of the globe along a meridian of longitude rather than along the equator as in the standard Mercator projection.
For small objects this projection is conformal (i.e. shape and angle are preserved), but areal distortion increases with increasing longitude. This projection is advantageous over the standard Mercator projection in such cases where the area to be

mapped has a greater north–south than east–west extension.

twilight
/ˈtwʌɪlʌɪt/
The time interval between sunset and the moment when the Sun falls more than a specified angle below the horizon.
Civil twilight occurs when the zenith distance of the centre of the disc of the Sun lies between 90° 50′ and 6°, *nautical twilight* when the zenith distance lies between 6° and 12°, and *astronomical twilight* between 12° and 18°.

unsharp masking
/ˈʌnʃaːp ˈmaːskıŋ/
(*US* /ˈʌnʃaːɹp ˈmæːskıŋ/)
An imaging process that increases the apparent sharpness of an image by combining a blurred positive with the negative of an image.

vall-is
/ˈvælıs/
pl. **-es** /ˈvælɛs/.
A channel on the surface of a planet or any solid celestial body.
IAU designation: VA.

volatile
/ˈvɔlətʌıl/
*n.*and *adj.*
A chemical element or compounds with a low boiling point.

'weird' terrain
/ˈwıəd tıˈrɛın/
(*US* /wıəɹd -/)
Chaotic, hilly terrain located in the antipodes of the Caloris impact basin and thought to have been created as a consequence of the severe impact.

X-band
/ɛks bænd/
The 7.0–11.2 GHz microwave region of the electromagnetic spectrum.

X-Ray Spectrometer
/ˈeksrɛı spɛkˈtrɔmıtə/
(*US* /- - spɛkˈtramıtəɹ/)
A **spectrometer** carried on board the ***MESSENGER*** probe to study the surface composition of Mercury by analysing the X-ray emission induced in surface materials by solar radiation.

XRS
/ɛks aː ɛs/
(*US* /- aːɹ -/)
= **Mercury X-Ray Spectrometer** (*q.v.*).

GAZETTEER OF MERCURY

(Incorporating IAU Update of 2012 December 19)

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2_3,

A

Abedin

/ˈæbədiːn/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

116.23 km diameter, (61.76°, 10.65°) [W], quad. H-2.

[Zainul *Abedin*, Bangladeshi painter (1914–1976).]

H:–:AA:AS:BA:5:2009 Jul 09:[1].

Abu Nuwas

/æˈbuː nʊˈwaːs/

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

116.76 km diameter, (17.76°, 21.04°) [W], quad. H-6.

[*Abu Nuwas* ← Arab. ابو نواس **(abū nuwās)**, Arab poet (1756–1810).]

H:–:AA:AS:SY:5:1976:[2,3].

Admeti Vallis†

/ədˈmiːtʌɪ ˈvælɪs/

Renamed ***Solitudo Admetei***

[L. (gen.) *Admeti* ← L. *Admetus* ← Gk Ἄδμητος **(Admētos)**, King of Pherae in Thessaly and one of the Argonauts + L. *vallis* (‘valley’).] [4,5].

Adventure Rupes

/ədˈvɛntʃə ˈruːpɪz/

(*US* /ədˈvɛntʃəɹ ˈruːpɪz/)

A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

340.63 km diameter (−65.53°, 64.87°) [W], quad. H-11.

[Eng. *Adventure* (a ship on Cook’s second Pacific voyage) + L. *rupes* (‘scarp’).]

H:–:RU:EU:EN:5:1976:[6].

Africanus Horton

/æfrɪˈkɛɪnəs ˈhɔːtən/

(*US* /- ˈhɔːɹtən/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

131.91 km diameter, (−51.02°, 41.29°) [W], quad. H-11.

[James Beale (*Africanus*) *Horton*, Sierra Leonean author (1835–1883).]

H:–:AA:AF:SL:5:1976:[7].

Agetor†

/əˈgiːtɔː/

(*US* /əˈgiːtɔːɹ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Agetor* ← Gk Ἀγήτωρ **(agētōr)**, ‘leader’, an epithet applied to Hermes, probably in his guise as leader of the souls of the dead into the lower world.] [8,9]

Agoraios†

/ægəˈrʌɪəs/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Agoraios* ← Gk Ἀγοραῖος **(agoraios)**, ‘of the marketplace’.] [10,11]

Ahmad Baba

/ʌˈmʌd ˈbaːbə/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

126.27 km diameter, (58.32°, 128.45°) [W], quad. H-3.

[*Ahmad Baba* ← Arab. أحمد بابا **(’aḥmad bābā)**, Abu al-Abbas Ahmad ibn Ahmad al-Takruri Al-Massufi al-Timbukti, West African (formerly Western Sudanese) writer (1556–1627).]

H:–:AA:AF:SU:5:1979:[12,13].

Ailey

/ˈɛɪli/

A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
20.58 km diameter (45.47°, 182.06°) [W], quad H-4.
[Alvin *Ailey*, American dancer and choreographer (1931–1989).]
H:–:AA:NA:US:5:2012 Apr 24:[14].

Aksakov
/ək'sækɔf/
(*US* /ək'sækaf/)
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
173.61 km diameter (34.77°, 78.7°) [W], quad. H-2.
[*Aksakov* ← Russ. Сергей Тимофеевич Аксаков **(Sergey Timofyeyevich Aksakov)**, Russian author (1791–1859).]
H:–:AA:EU:RU:5:2012 Apr 24:[15,16].

Ala†
/'aːlə/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Ala* ← L. *āla* ('wing'), a reference to the winged sandals and hat of Mercury.]
[17,18]

Alae regio†
/'aːliː 'rɛʤəʊ/
(*US* /- 'rɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Alae* ←L. (gen.) *ālae* ← *āla* ('wing'), a reference to the winged sandals and hat of Mercury + L. *regio* ('region').] [19,20].

Al-Akhtal
/æl'æxtæl/
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
94.29 km diameter, (59.73°, 100.14°) [W], quad. H-3.
[*Al-Akhtal* ← Arab. الاخطل **(al-aḫṭal)**, Arab poet (*c.* 640–710).]
H:–:AA:AS:AR:5:1985:[21,22].

Alencar
/ælıŋ'kaː/
(*US* /ælıŋ'kaːɹ/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
105.95 km diameter, (−63.63°, 103.77°) [W], quad. H-12.
[Port. José de *Alencar*, Brazilian novelist (1829–1877).]
H:–:AA:SA:BR:5:1979:[23].

Al-Hamadhani
/ælhæmə'daːni/
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
167.34 km diameter, (39.02°, 91.95°) [W], quad. H-3.
[*Al-Hamadhani* ← Arab. الهمذاني **(al-hamaḏānī)**, Arab writer (*d.* 1007).]
H:–:AA:AS:AR:5:1979:[24,25].

Al-Jāhiz
/æl'ʤaːhız/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
82.86 km diameter, (1.42°, 21.66°) [W], quad. H-6.
[*Al-Jāhiz* ← Arab. الجاحظ **(al-ǧāḥiẓ)**, Arab author (*c.* 781–869).]
H:–:AA:AS:AR:5:1976:[26,27].

Amaral
/'æməraːl/
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
108.52 km diameter, (−26.54°, 242.2°) [W], quad. H-13.
[Tarsila do *Amaral*, Brazilian painter (1886–1973).]
H:–:AA:SA:BR:5:2008 Nov 20:[28].

Amru Al-Qays
/ɪmˈruː uːlˈkiːs/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
47.02 km diameter, (12.37°, 176.01°) [W], quad. H-8.
[*Amru Al-Qays* ← Arab. امرؤ القيس **(imru’ al-qais)**, pre-Islamic Arab poet (*c.* 501–544).]
H:–:AA:AS:AR:5:1976:[29,30].

Andal
/ˈændaːl/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
108.55 km diameter, (−47.48°, 37.63°) [W], quad. H-11.
[*Andal*, tenth (?) century Tamil poet-saint.]
H:–:AA:AS:IN:5:1976:[31,32].

Anguis†
/ˈæŋgjʊɪs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Anguis* (‘serpent’), referring to the intertwined serpents of the caduceus, symbol of Mercury.] [33,34]

Anguis regio†
/ˈæŋgjuːwɪs ˈrɛʤəʊ/
(*US* - ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Anguis* (‘of the serpent’) + L. *regio* (‘region’).] [35,36].

Antoniadi Dorsum
/æntənɪˈaːdi ˈdɔːsəm/
(*US* /- ˈdɔːɹsəm/)
A ridge in the Victoria (formerly Aurora) quadrangle of Mercury.
(359.4°, 29.65°) [W], quad. H-2.
[Eugène Marie *Antoniadi*, Greek-born French astronomer (1870–1944).]
H:–:DO:EU:IT?:5:1976:[37,38].

Aphorismos†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Aphorismos* ← Gk Ἀφορισμός **(aphorismos)**, ‘aphorism’, poss. reference to the *Centiloquium of Hermes Trismegistus*, a collection of 100 aphorisms relating to astrology.] [39,40]

Apollodorus
/əpɔləˈdɔːrəs/
(*US* /əpaləˈdɔːrəs/)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
41.51 km diameter, (30.51°, 196.65°) [W], quad. H-4.
[L. *Apollodorus* (of Damascus) ← Gk Ἀπολλόδωρος **(Apollodōros)**, Greek architect (second century A.D.).]
H:–:AA:EU:GR:5:2008 Apr 08:[41,42].

Apollonia
/æpəˈləʊniə/
(*US* /æpəˈloʊniə/)
A bright **albedo feature** on Mercury.
Northernmost feature in Antoniadi’s chart. H-5 region (45°, 315°) [W] (unmapped by *Mariner 10*).
[L. *Apollonia* ← Gk Ἀπολλώνια **(Apollōnia)**, ‘land of Apollo’.]
H:–:AL:EU:RM?:5:1976:[43,44].

Arecibo Vallis
/ærɪˈsiːbəʊ ˈvælɪs/
A channel in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
133.05 km diameter, (−27.72°, 28.23°) [W], quad. H-11.
[*Arecibo* (radio observatory on Puerto Rico) + L. *vallis* (‘valley’).]
H:–:VA:SA:PR:5:1976:[45].

Argi regio†
/ˈaːʤʌɪ ˈrɛʤəʊ/
(*US* /ˈaːɹʤʌɪ ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Argi* ← *Argus* ← GK Ἄργος Πανόπτης (**Argos Panoptēs**), 'hundred-eyed Argus', slain by Hermes + L. *regio* ('region').] [46,47].

Argyritis†
/aːgɪrˈʌɪtɪs/
(*US* /aːɹgɪrˈʌɪtɪs/)
A bright **albedo feature** on the surface of Mercury.
In the NE quadrant of Antoniadi's chart, bounded by Liguria to the N, Heliocaminus to the W, Neptuni Vallis to the S and Solitudo Dionysi to the E.
[L. *Argyritis* ← Gk gen. ἀργυρῖτις (**argyritis**) ← ἄργυρος (**argyros**), 'silver', A mythical island of silver in the east).] [48].

Aristoxenus
/ærɪˈstɔksɪnəs/
(*US* /ærɪˈstaksɪnəs/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
52.14 km diameter, (84.44°, 19.95°) [W], quad. H-1.
[L. *Aristoxenus* ← Gk Ἀριστόξενος (**Aristoxenos**), Greek philosopher (*fl.* fourth century B.C.)]
H:–:AA:EU:GR:5:1979:[49,50].

Astrolabe Rupes
/ˈæstrəlaːb ˈruːpɪz/
A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
251 km diameter, (−42.52°, 70.79°) [W], quad. H-11.
[Fr. *Astrolabe* (d'Urville's Antarctica exploration ship) + L. *rupes* ('scarp').]
H:–:RU:EU:FR:5:1976:[51,52].

Aśvaghosa
/æʃfəˈgəʊʃə/
(*US* /æʃfəˈgoʊʃə/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
88.24 km diameter, (10.62°, 21.39°) [W], quad. H-6.
[**Aśvaghosa* ← Skr. अश्वघोष (**aśvaghoṣa**), Indian philosopher and poet (80–150).]
H:–:AA:AS:IN:5:1976:[53,54].

Atget
/ˈædʒɛɪ, ˈædʒɛt/
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
100.33 km diameter, (25.57°, 193.53°) [W], quad. H-4.
[Eugène *Atget*, French photographer (1857–1927).]
H:–:AA:EU:FR:5:2008 Apr 08:[55].

Aurora
/əˈrɔːrə/
A light **albedo feature** on Mercury.
On the eastern terminator in Antoniadi's chart, bound by Caduceata and Solitudo Dionysi to the N, Admeti Vallis to the W and Solitudo Lycaonis to the N.
Victoria region (45°, 90.0°) [W], quad. H-2.
[*Aurora* ← L. *Aurōra*, Roman goddess of dawn.]
H:–:AL:EU:RM:5:1976:[56,57].

Australia
/ɔˈstreɪlɪə/
(*US* /aˈstreɪlɪə/)
An **albedo feature** on Mercury.
Bach region (−72.5°, 360°) [W], quad. H-15.
[*Australia* ← L. *australis* ('southern'.]
H:–:AL:EU:RM:5:1976:[58,59].

B

Bach

/baːx/

A crater in the Bach (formerly Australia) quadrangle of Mercury.
214.29 km diameter, (−69.87°, 102.99°) [W], quad. H-15.

[Johann Sebastian *Bach*, German composer (1685–1750).]

H:–:AA:EU:GE:5:1976:[60].

Balagtas

/bæləɡˈtaːs/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
98.82 km diameter, (−22.6°, 14.01°) [W], quad. H-11.

[Francisco *Balagtas* ← Tag. *Ama ng Balagtasan* ('Father of the *Balagtasan*', a poetic dialogue), Francisco Baltazar, Tagalog poet (1788–1862).]

H:–:AA:AS:PH:5:1976:[61,62].

Balanchine

/ˈbæləntʃiːn/

A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
40.9 km diameter, (38.53°, 184.28°) [W], quad H-4.

[*Balanchine* ← Russ. Георгий Мелитонович Баланчивадзе **(Georgiy Melitonovich Balanchivadze)** ← Georg. **Giorgi Balanchivadze**, a Georgian–Russian born American choreographer (1904–1983).]

H:–:AA:NA:US:5:2012 Apr 24:[63,64].

Balzac

/ˈbaːlzaːk/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
67.04 km diameter, (10.58°, 144.59°) [W], quad. H-8.

[Honoré de *Balzac*, French novelist (1799–1850).]

H:–:AA:EU:FR:5:1976:[65].

Barma

/ˈbaːmə/
(*US* /ˈbaːɹmə/)

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
122.71 km diameter, (−40.99°, 163.39°) [W], quad. H-12.

[Postnik Yakovlev (*Barma*) ← Russ. Постник Яковлев (Барма) **(Postnik Yakovlyev [Barma])**, sixteenth century Russian architect.]

H:–:AA:EU:RU:5:1982:[66,67].

Bartók

/ˈbaːtɔk/
(*US* /ˈbaːɹtak/)

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
116.65 km diameter, (−29.28°, 134.98°) [W], quad. H-12.

[Bela *Bartók*, Hungarian composer (1881–1945).]

H:–:AA:EU:HU:5:1979:[68].

Bashō

/bæʃəʊ/
(*US* /bæʃoʊ/)

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
74.62 km diameter, (−32.43°, 170.44°) [W], quad. H-12.

[Matsuo *Bashō* ← Jap. 松尾芭蕉, Japanese poet (1644–1694).]

H:–:AA:AS:JA:5:1979:[69,70].

Beagle Rupes

/ˈbiːɡəl ˈruːpɪz/

A scarp in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
630.89 km diameter, (−3.43°, 259.28°) [W], quad. H-9.
[Eng. *Beagle* British survey vessel (1831–1836) on which Charles Darwin served as naturalist + L. *rupes* ('scarp').]
H:–:RU:EU:GB:5:2008 Apr 8:[71].

Beckett
/ˈbɛkɪt/
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
60.24 km diameter, (−40.16°, 248.67°) [W], quad. H-13.
[Clarice *Beckett*, Australian painter (1887–1935).]
H:–:AA:OC:AU:5:2008 Nov 20:[72].

Beethoven
/ˈbɛɪtəʊvən/
(*US* /ˈbɛɪtoʊvən/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
630.38 km diameter, (−20.92°, 123.66°) [W], quad. H-7.
[Ludwig van *Beethoven*, German composer (1770–1827).]
H:–:AA:EU:GE:5:1976:[73].

Bek
/bɛk/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
32.19 km diameter, (21.18°, 50.92°) [W], quad. H-6.
[*Bek*, Egyptian sculptor (*fl. c.* 1340 B.C.).]
H:–:AA:AF:EG:5:2010 Mar 3:[74,75].

Belinskij
/bəˈlɪnskɪ/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
70.67 km diameter, (−77.09°, 103.85°) [W], quad. H-15.
[Vissarion Grigoryevich *Belinskij* ← Russ. Виссарион Григорьевич Белинский (**Vissarion Grigoryevich Byelinskiy**), Russian literary critic (1811–1848).]
H:–:AA:EU:RU:5:1985:[76,77].

Bello
/ˈbɛljəʊ/
(*US* /ˈbɛljoʊ/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
139.13 km diameter, (−18.89°, 128.57°) [W], quad. H-7.
[Andrés *Bello*, Venezuelan poet (1781–1865).]
H:–:AA:SA:VE:5:1976:[78,79].

Benoit
/bɛˈnwaː/
A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
40.12 km diameter, (7.51°, 255.59°) [W], quad. H-9.
[Rigaud *Benoit*, Haitian painter (1911–1987).]
H:–:AA:SA:HA:5:2009 Jul 09:[80].

Berkel
/ˈbɛːkəl/
(*US* /ˈbɛːɹkəl/)
A crater in the Derain (formerly Pieria) quadrangle of Mercury.
22.4 km diameter, (−13.7°, 333.23°) [W], quad. H-10.
[Sabri *Berkel*, Turkish painter (1909–1993).]
H:–:AA:AS:TU:5:2009 Jul 09:[81,82].

Bernini
/bəˈniːni/
(*US* /bəɹˈniːni/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.

168.13 km diameter, (−80.33°, 140.63°) [W], quad. H-15.

[Gian Lorenzo *Bernini*, Italian sculptor (1598–1680).]

H:–:AA:EU:IT:5:1976:[83].

Bjornson

/ˈbjɔːnsən/
(*US* /ˈbjɔːɹnsən/)

A crater in the Borealis (formerly Borea) quadrangle of Mercury.
75.93 km diameter, (73.07°, 114.52°) [W], quad. H-1.

[*Bjornson* ← Norw. Björnstjerne Martinius *Björnson*, Norwegian poet and dramatist (1832–1910).]

H:–:AA:EU:NO:5:1985:[84,85].

Boccaccio

/bəˈkaːtʃəʊ/
(*US* /bəˈkaːtʃoʊ/)

A crater in the Bach (formerly Australia) quadrangle of Mercury.
151.95 km diameter, (−80.83°, 23.24°) [W], quad. H-15.

[Giovanni *Boccaccio*, Italian poet (1313–1375).]

H:–:AA:EU:IT:5:1976:[86].

Boethius

/bəʊˈiːθɪəs/
(*US* /boʊˈiːθɪəs/)

A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
114.73 km diameter, (−1.04°, 73.57°) [W], quad. H-7.

[*Boethius* ← Anicius Manlius Severinus *Boēthius*, Roman philosopher (*c.* 470–524).]

H:–:AA:EU:RO:5:1976:[87,88].

Borea

/ˈbɔːrɪə/

An **albedo feature** on Mercury.
H-1, Borealis region (75°, 360°) [W].

[*Borea* (‘northern region’) ← L. *boreas* ← Gk βόρειος (‘northern’).]

H:–:AL:EU:RM:5:1976:[89,90].

Borealis Planitia

/bɔrɪˈɛɪlɪs pləˈnɪtɪə/
(*US* /barɪˈɛɪlɪs -/)

A low plain in the Borealis (formerly Borea) quadrangle of Mercury.
802.94 km diameter, (74.7°, 80.09°) [W], quad. H-1.

[*Borealis* ← L. *boreālis* (‘northern’) + L. *Planitia* (‘plain’).]

H:–:PL:EU:LA:5:1976:[91,92].

Botticelli

/bɔtɪˈtʃɛlɪ/
(*US* /batɪˈtʃɛlɪ/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
136.35 km diameter, (63.76°, 113.33°) [W], quad. H-3.

[Sandro *Botticelli*, Italian painter (1445–1510).]

H:–:AA:EU:IT:5:1979:[93,94].

Boukolos†

/buːˈkɔləs/
(*US* /buːˈkaləs/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Boukolos* ← Gk βουκόλος **(boukolos)**, ‘herdsman’, reference to Hermes as a cattle driver.] [95,96]

Brahms

/braːmz/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
100.29 km diameter, (58.31°, 177.36°) [W], quad. H-3.

[Johannes *Brahms*, German composer (1883–1897).]
H:–:AA:EU:GE:5:1979:[97].

Bramante
/brəˈmaːntɛɪ/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
156 km diameter, (−47.21°, 61.51°) [W], quad. H-11.
[Donato *Bramante*, Italian architect (1444–1514).]
H:–:AA:EU:IT:5:1976:[98].

Brontë
/ˈbrɔntɛɪ/
(*US* /ˈbrantɛɪ/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
68.31 km diameter, (38.53°, 127.52°) [W], quad. H-3.
[Charlotte (1816–1855), Emily (1818–1848) and Anne (1820–2849) *Brontë*, English novelists, and Branwell *Brontë* (1817–1848), author and painter.]
H:–:AA:EU:EN:5:1976:[99].

Bruegel
/ˈbruːgəl/
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
72.37 km diameter, (49.74°, 109.61°) [W], quad. H-3.
[Pieter *Brueghel*, Flemish painter (1525–1569).]
H:–:AA:EU:FL:5:1985:[100].

Brunelleschi
/bruːnəˈlɛski/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
128.57 km diameter, (−8.92°, 22.43°) [W], quad. H-6.
[Filippo *Brunelleschi*, Florentine architect (1377–1446).]
H:–:AA:EU:IT:5:1976:[101].

Budh Planitia
/bʊd pləˈnɪʃə/
A low plain in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
(22°, 150.9°) [W]. Quad. H-08.
[*Budh* ← Hin. बुध **(budh)** ← Skr. **(budha)**, 'Mercury' + L. *planitia*, 'plain'.]
H:-:PL:AS:IN:5:1976:[102,103]

Burns
/bəːnz/
(*US* /bəːɹnz/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
43.02 km diameter, (54.14°, 117.83°) [W], quad. H-3.
[Robert *Burns*, Scottish national poet (1759–1796).]
H:–:AA:EU:SC:5:1985:[104].

Byron
/ˈbʌɪrən/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
106.58 km diameter, (−8.7°, 32.93°) [W], quad. H-6.
[George Gordon, 6th Lord *Byron* (1788–1824).]
H:–:AA:EU:EN:5:1976:[105].

C

Caduceata

/kædjuːʃiːˈɛɪtə/

A bright **albedo feature** on Mercury.

In Antoniadi's chart bounded by Apollonia to the N, Solitudo Aphrodites to the W, and Liguria, Solitudo Dionysi and Aurora to the S. H-3, Shakespeare region (45°, 135°) [W].

[L. *caduceata* ('carrying the caduceus').]

H:–:AL:EU:RM:5:1976:[106,107].

Caducei regio†

/kəˈdjuːʃɛɪ ˈrɛdʒəʊ/

(*US* /- ˌrɛdʒoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Caducei* ← L. (gen.) *cādūcei* ← *cādūceus* ('herald's staff') + L. *regio* ('region').] [108,109]

Caduceus†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Caduceus* ← L. *cādūceus* ('herald's staff') ← Gk κηρύκειον **(Kērykeion)**, the staff, entwined with two serpents, carried by Mercury.] [110,111]

Callicrates

/kəˈlɪkrətiːz/

A crater in the Bach (formerly Australia) quadrangle of Mercury.

68.32 km diameter, (−66.49°, 30.36°) [W], quad. H-15.

[*Callicrates* ← Gk Καλλικράτης **(Kallikratēs)**, Greek architect (fifth century B.C.]

H:–:AA:EU:GR:5:1976:[112,113].

Caloris Montes

/kəˈlɔːrɪs ˈmɔntɛz/

(*US* /- ˈmantɛz/)

A mountain range in the Shakespeare (formerly Caduceata) quadrangle of Mercury, named for its location in a region of the Mercurian surface where the temperature is highest.

1023.45 km diameter, (31.46°, 174.15°) [W], quad. H-3.

[L. *Caloris* ('hot') + L. *Montes* ('mountains').]

H:–:MO:EU:LA:5:1976:[114,115].

Caloris Planitia

/kəˈlɔːrɪs pləˈnɪʃə/

A low plain in The Raditladi (formerly Liguria) quadrangle of Mercury, named for its location in a region of the surface where the temperature is highest.

685.18 km diameter, (32.57°, 197.69°) [W], quad. H-4.

[L. *Caloris* ('hot') + L. *Planitia* ('plain').]

H:–:PL:EU:LA:5:1976:[116,117].

Calvino

/kælˈviːnəʊ/

(*US* /kælˈviːnoʊ/)

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

67.23 km diameter, (−3.93°, 55.98°) [W], quad. H-6.

[Italo *Calvino*, Italian writer (1923–1985).]

H:–:AA:EU:IT:5:2009 Jul 09:[118].

Camões

/kəməʊˈɛnʃ/

(*US* /kəmoʊˈɛnʃ/)

A crater in the Bach (formerly Australia) quadrangle of Mercury.

69.67 km diameter, (−71.21°, 68.18°) [W], quad. H-15.

[Luis Vas de *Camões*, Portuguese poet (1524–1580).]

H:–:AA:EU:PG:5:1976:[119].

Carducci

/kaːˈduːtʃɪ/
(*US* /kaːɹˈduːtʃɪ/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
108.19 km diameter, $(-36.54°, 90.56°)$ [W], quad. H-12.
[Giosue *Carducci*, Italian poet (1835–1907).]
H:–:AA:EU:IT:5:1976:[120].

Carvara†

A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Carvara* ← *Karvara* ← L. *cerberus* ← Gk κέρβερος.] [121,122]

Catullus

/kəˈtʌləs/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
100.25 km diameter, $(21.96°, 67.56°)$ [W], quad. H-6.
[Gaius Varerius *Catullus*, a Roman poet (*c.* 84–*c.* 54 B.C.]
H:–:AA:EU:RM:5:2012 Dec 19[834,835]

Cervantes

/səˈvæntiːz/
(*US* /səɹˈvæntiːz/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
213.16 km diameter, $(-76.05°, 124.27°)$ [W], quad. H-15.
[Miguel de *Cervantes*, Spanish novelist (1547–1616).]
H:–:AA:EU:SP:5:1976:[123].

Cézanne

/sɛˈzæn/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
67.49 km diameter, $(-8.47°, 123.65°)$ [W], quad. H-7.
[Paul *Cézanne*, French painter (1839–1906).]
H:–:AA:EU:FR:5:1985:[124].

Chaikovskij

/tʃaɪˈkɔfski/
(*US* /tʃaɪˈkafski/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
171.02 km diameter, $(7.9°, 50.87°)$ [W], quad. H-6.
[*Chaikovskij* ← Russ. Пётр Ильич Чайковский (**Pyotr Ilyich Chaikovskiy**), Russian composer (1840–1893).]
H:–:AA:EU:RU:5:1976:[125,126].

Chao Meng-Fu

/tʃaʊ mɛŋˈfuː/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
128.65 km diameter, $(-87.85°, 133.19°)$ [W], quad. H-15.
[*Chao Meng-Fu* ← simpl. Chin. 趙孟頫 ← trad. Chin. 趙孟頫 [**Chao**⁴ **Meng**⁴**-fu**³ (W-G); **Zhào Mèngfŭ** (pin.)], Chinese scholar, painter and calligrapher of the Yuan Dynasty (1254–1322).]
H:–:AA:AS:CH:5:1976:[127,128].

Chekhov

/ˈtʃɛkɔf/
(*US* /ˈtʃɛkaf/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
193.84 km diameter, $(-36.22°, 61.33°)$ [W], quad. H-11.
[*Chekhov* ← Russ. Антон Павлович Чехов (**Anton Pavlovich Chekhov**), Russian playwright (1860–1904).]
H:–:AA:EU:RU:5:1976:[129,130].

Chelydoreae regio†

/kɛlɪˈdɔːrɪʌɪ ˈrɛdʒjəʊ/
(*US* /- ˈrɛdʒjəʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. (gen.) *Chelydoreae* → Gk Χελυδόρεα **(Khelydorea)**, a mountain in Arcadia,where Hermes found a tortoise from whose shell he made a harp + L. *regio* ('region').] [131,132].

Chesterton

/ˈtʃɛstətən/
(*US* /ˈtʃɛstəɹtən/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
37.23 km diameter (88.38°, 134.49°) [W], quad H-1.

[Gilbert Keith *Chesterton*, English author (1874–1936).]

H:–:AA:EU:EN:5:2012 Sep 17:[815,816].

Chiang K'ui

/ʤjaːŋ ˈkwɛɪ/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
41.11 km diameter, (14.74°, 102.77°) [W], quad. H-7.

[*Chiang K'ui* ← simpl. Chin. 姜夔 ← trad. Chin. 姜夔 [**Chiang**[1] **K'ui**[2] (W-G); **Jiāng Kuí** (pin.)], Chinese composer, poet and calligrapher (*c.* 1155–*c.* 1221).]

H:–:AA:AS:CH:5:1976:[133,134].

Chlamys†

/ˈklæmɪs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Chlamys* ← L. *chlamys* ('cloak') ← Gk χλαμύς **(khlamys)**, a short cloak worn by Hermes]. [135,136]

Chŏng Ch'ŏl

/tʃɔŋ ˈtʃɔl/
(*US* /tʃaŋ ˈtʃɔl/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
143.22 km diameter, (46.71°, 117.53°) [W], quad. H-3.

[*Chŏng Ch'ŏl* ← hangul 정철 ← hanja 鄭澈 [**Chŏng Ch'ŏl** (M-R); **Jeong Cheol** (rev.)], Korean poet and statesman (1536–1593).]

H:–:AA:AS:KR:5:1979:[137,138].

Chopin

/ˈʃəʊpæŋ/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
131.34 km diameter, (−65.5°, 123.51°) [W], quad. H-15.

[Frédéric François *Chopin* ← Pol. Fryderik Franciszek *Chopin* [occ. Pol. form *Szopen*], Polish-born French composer and pianist (1810–1849).]

H:–:AA:EU:PO:5:1976:[139,140].

Chu Ta

/tʃuːˈtaː/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
100.38 km diameter, (2.02°, 105.66°) [W], quad. H-7.

[*Chu Ta* ← simpl. Chin. 朱耷 ←, trad. Chin. 朱耷 [**Chu**[1] **Ta**[1] (W-G); **Zhū Dā** (pin.)] Chinese painter and calligrapher (1626–1705).]

H:–:AA:AS:CH:5:1976:[141,142].

Coleridge

/ˈkəʊlrɪʤ/
(*US* /ˈkoʊlrɪʤ/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
111.68 km diameter, (−55.42°, 66.23°) [W], quad. H-11.

[Samuel Taylor *Coleridge*, English poet (1772–1834).]

H:–:AA:EU:EN:5:1976:[143].

Copland

/ˈkɔplənd/
(*US* /ˈkaplənd/)
A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.

208.71 km diameter, (37.65°, 286.95°) [W], quad. H-5.

[Aaron *Copland*, American composer (1900–1990).]

H:–:AA:NA:AM:5:2010 Mar 03:[144].

Copley

/ˈkɔpli/
(*US* /ˈkapli/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

34.89 km diameter, (−38.56°, 85.95°) [W], quad. H-11.

[John Singleton *Copley*, American painter (1738–1815).]

H:–:AA:NA:AM:5:1976:[145].

Corneus†

/ˈkɔːnjʊːs/
(*US* /ˈkɔːɹnjʊːs/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. (adj.) *Corneus* ('of horn'), referring to the horns used by Mercury to invent the lyre.] [146,147]

Cornu†

/ˈkɔːnjʊː/
(*US* /ˈkɔːɹnjʊː/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Cornu* ← L. *cornū* ('horn').] [148,149]

Couperin

/ˈkuːpəræŋ/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

79.44 km diameter, (29.74°, 151.9°) [W], quad. H-3.

[François *Couperin*, French composer (1688–1733).]

H:–:AA:EU:FR:5:1979:[150].

Cunningham

/ˈkʌniŋəm/
(*US* /ˈkʌnɪŋhæm/)

A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.

37.57 km diameter, (30.37°, 202.84°) [W], quad. H-4.

[Imogen *Cunningham*, American photographer (1883–1976).]

H:–:AA:NA:AM:5:2008 Apr 08:[151].

[1]Cyllene

/sɪˈliːni/

A bright **albedo feature** on Mercury.

In Antoniadi's chart bound by Phaethontias and Ixionis Vallis to the N, Solitudo Atlantis to the W, Solitudo to the S, and Solitudo Panos and Solitudo Maiae to the E.

Unimaged H-14 region (−41°, 270°) [W].

[*Cyllene* ← L. *Cyllēnē* ← Gr. *Κυλλήνη* **(Kyllēnē)**, the native land of the god Hermes.]

H:–:AL:EU:RM:5:1976:[152,153].

[2]Cyllene†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[154,155]

Cyllenes regio†

/sɪˈliːnɪz ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Cyllenes* ← L. (gen) *Cyllēnēs* ← L. *Cyllēnē* → Gk *Κυλλήνη* **(Kyllēnē)**, the native land of the god Hermes + L. *regio* ('region').] [156,157].

D

Dali

/da'liː/

A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
176.11 km diameter, (45.11°, 239.97°) [W], quad. H-4.

[**Dali* → Salvador *Dalí*, Spanish painter (1904–1989).]

H:–:AA:EU:SP:5:2008 Nov 20:[158,159].

Darío

/də'riːəʊ/
(*US* /də'riːoʊ/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
151.67 km diameter, (−26.24°, 9.46°) [W], quad. H-11.

[Ruben *Darío*, Nicaraguan poet (1867–1916).]

H:–:AA:SA:NI:5:1976:[160].

Debussy

/də'buːsi/

A crater in the Debussy (formerly Cyllene) quadrangle of Mercury.
80.16 km diameter, (−33.97°, 347.31°) [W], quad. H-14.

[Achille-Claude *Debussy*, French composer (1862–1918).]

H:–:AA:EU:FR:5:2010 Mar 03:[161].

Degas

/dɛɪ'gaː/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
54.9 km diameter, (37.12°, 127.99°) [W], quad. H-3.

[Hilaire Germain Edgar *Degas*, French painter (1834–1917).]

H:–:AA:EU:FR:5:1979:[162].

de Graft

/də 'graːft/

A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.
68.16 km diameter, (22.14°, 358°) [W], quad. H-5.

[Joe *de Graft*, Ghanaian playwright and novelist (1924–1978).]

H:–:AA:AF:GH:5:2009 Jul 09:[163].

Delacroix

/dələ'krwaː/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
157.77 km diameter, (−44.35°, 129.45°) [W], quad. H-12.

[Ferdinand Victor Eugène *Delacroix*, French painter (1798–1863).]

H:–:AA:EU:FR:5:1979:[164].

Derain

/də'ræŋ/

A crater in the Derain (formerly Pieria) quadrangle of Mercury.
167.47 km diameter, (−8.82°, 340.29°) [W], quad. H-10.

[André *Derain*, French painter (1880–1954).]

H:–:AA:EU:FR:5:2009 Jul 09:[165].

Derzhavin

/djɛ'ʒævɪn/
(*US* /djɛɹ'ʒævɪn/)

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
156.3 km diameter, (46.11°, 36.93°) [W], quad. H-2.

[Gavrila Romanovich *Derzhavin* ← Russ. Гаврил (Гаврила) Романович Державин **(Gavrila Romanovich Dyerzhavin)**, Russian poet (1743–1816).]

H:–:AA:EU:RU:5:1979:[166,167].

Despréz

/dɛɪˈprɛɪ/

A crater in the Borealis (formerly Borea) quadrangle of Mercury.
47.05 km diameter, (81.05°, 102.89°) [W], quad. H-1.

[Josquin *Despréz*, French composer (*c.* 1440–1521).]

H:–:AA:EU:FR:5:1979:[168].

Dickens

/ˈdɪkɪnz/

A crater in the Bach (formerly Australia) quadrangle of Mercury.
77.31 km diameter, (−73.4°, 155.63°) [W], quad. H-15.

[Charles *Dickens*, English novelist (1812–1870).]

H:–:AA:EU:EN:5:1976:[169].

Diemporos†

/dʌɪˈɛmpərəs/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Diemporos* ← Gk διέμπορος **(diemporos)**, an epithet of Hermes as the god of commerce.] [170,171]

Discovery Rupes

/dɪsˈkʌvəri ˈruːpɪz/

A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
411.91 km diameter, (−54.7°, 37.24°) [W], quad. H-11.

[Eng. *Discovery* (a ship on Cook's last Pacific voyage) + L. *rupes* ('scarp').]

H:–:RU:EU:EN:5:1976:[172].

Disney

/ˈdɪznɪ/

A crater in the Bach quadrangle of Mercury.
113.44 km diameter, (−68.28°, 260.13°) [W], quad. H-15.

[Walter Elias ('Walt') *Disney*, American film director, screenwriter and animator (1901–1966).]

H:–:AA:NA:US:5:2012 Dec 19:[836,837].

Dolios†

/ˈdɔlɪəs/
(*US* /ˈdalɪəs/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Dolios* ← Gk δόλιος **(dolios)**, 'deceitful, wily', an epithet applied to Hermes.]
[173,174]

Dominici

/dɔmɪˈniːtʃi/
(*US* /damɪˈniːtʃi/)

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
19.95 km diameter, (1.32°, 36.45°) [W], quad. H-6.

[Suor Maria de *Dominici*, Maltese sculptor and painter (1645–1703).]

H:–:AA:EU:ML:5:2010 Mar 03:[175].

Donne

/dʌn/

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
85.64 km diameter, (2.99°, 13.93°) [W], quad. H-6.

[John *Donne*, English poet (1572–1631).]

H:–:AA:EU:EN:5:1976:[176].

Dostoevskij

/dɔstɔˈjɛfskɪ/
(*US* /dastaˈjɛfskɪ/)

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
430.35 km diameter, (−44.95°, 176.24°) [W], quad. H-12.

[*Dostoyevskij* ← Russ. Фёдор Михаилович Достоевский **(Fyodor Mikhailovich Dostoyevskiy)**, Russian novelist (1821–1881).]

H:–:AA:EU:RU:5:1979:[177,178].

Dowland
/ˈdaʊlənd/
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
158.5 km diameter, (−53.65°, 180.45°) [W], quad. H-13.
[John *Dowland*, English composer (1562–1626).]
H:–:AA:EU:EN:5:1979:[179].

Dürer
/ˈduːrə/
(*US* /ˈduːrəɹ/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
194.71 km diameter, (21.55°, 119.18°) [W], quad. H-7.
[Albrecht *Dürer*, German painter (1471–1528).]
H:–:AA:EU:GE:5:1976:[180].

Dvořák
/ˈdvɔːʒak/
(*US* /ˈdvɔːɹʒak/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
74.38 km diameter, (−9.33°, 12.06°) [W], quad. H-6.
[Antonín Leopold *Dvořák*. Bohemian composer (1841–1904).]
H:–:AA:EU:CZ:5:1976:[181,182].

E

Eastman

/ˈiːstmən/

A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.

67.65 km diameter, (9.53°, 234.16°) [W], quad. H-9.

[Charles A. *Eastman* (Ohiyesa), Sioux author (1858–1939).]

H:–:AA:NA:SX:5:2009 Jul 09:[183].

Ebur†

/ˈiːbə/

(*US* /ˈiːbəɹ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. *Ebur* (‘ivory’?).] [184,185]

Echegaray

/ɛtʃɛgaˈrʌɪ/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

62.88 km diameter, (43.67°, 20.04°) [W], quad. H-2.

[José *Echegaray* y Eizaguirre, Spanish dramatist (1832–1916).]

H:–:AA:EU:SP:5:1985:[186].

Egonu

/ɪˈgɔnuː/

(*US* /ɪˈganuː/)

A crater in the Borealis (formerly Borea) quadrangle of Mercury.

25 km diameter, (67.4°, 299.2°) [W], quad. H-1.

[Uzo *Egonu*, Nigerian artist (1931–1996).]

H:–:AA:AF:NI:5:2012 Aug 6:[817].

Eitoku

/ɛɪtɔkuː/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.

100.87 km diameter, (−21.86°, 157.02°) [W], quad. H-08.

[*Eitoku* ← Jap. 狩野永徳, pseudonym of Kanō Kuninobu ← Jap. 狩野州信, Japanese painter (1532–1590).]

H:–:AA:AS:JA:5:1976:[187,188].

Ellington

/ˈɛlɪŋtən/

A crater in the Derain (formerly Pieria) quadrangle of Mercury.

216.05 km diameter, (−12.85°, 333.82°) [W], quad. H-10.

[Edward Kennedy (‘Duke’) *Ellington*, American Jazz musician, conductor and composer (1899–1974).]

H:–:AA:NA:US:5:2012 Apr 24:[189].

Eminescu

/ɛmɪˈnɛskuː/

A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.

129.82 km diameter, (10.7°, 245.7°) [W], quad. H-9.

[Mihail *Eminescu*, Romanian poet (1850–1889).]

H:–:AA:EU:RO:5:2008 Apr 08:[190].

Empolaios†

/ɛmpəˈlʌɪəs/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Empolaios* ← Gk ἐμπολαῖος **(empolaios)**, ‘of traffic’, an epithet applied to Hermes.] [191,192]

Endeavour Rupes

/ɛnˈdɛvə ruːpɪz/

(*US* /ɛnˈdɛvəɹ -/)

A scarp in the Victoria (formerly Aurora) quadrangle of Mercury.

61.45 km diameter, (38.28°, 31.33°) [W], quad. H-2.

[Eng. *Endeavour* (Cook's Tahiti, New Zealand and Australia exploration ship) + L. *rupes* ('scarp').]
H:–:RU:EU:EN:5:1976:[193].

Enodios†

/ɛnˈɔdɪəs/
(*US* /ɛnˈadɪəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Enodios* ← Gk ἐνόδιος **(enodios)**, 'on the road ← ἐν ('on') + ὁδός ('road').]
[194,195]

Enwonwu

/ɛŋˈwɔŋwʊː/
(*US* /ɛŋˈwaŋwʊː/)
A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
37.75 km diameter, (−9.99°, 238.03°) [W], quad. H-9.
[Benedict (Ben) Chukwukadibia *Enwonwu*, Igbo Nigerian sculptor and painter (1921–1994).]
H:–:AA:AF:NI:5:2008 Nov 20:[196,197].

Equiano

/ɛkwɪaːnəʊ/
(*US* /ɛkwɪˈaːnoʊ/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
102.51 km diameter, (−39.99°, 30.55°) [W], quad. H-11.
[Olaudah *Equiano* (Gustavus Vassa) ← Igbo Olauda Ikwuano, West African (Benin) slave and writer (*c.* 1750–1797).]
H:–:AA:AF:BE:5:1976:[198,199].

F

Faulker

/ˈfɔːknə/
(*US* ˈfɔːknəɹ)
A crater in the Eminescu (formerly Solitudo Criophori) quadrant of Mercury.
167.85 km diameter, (8.06°, 282.97°) [W], quad. H-9.
[William *Faulkner*, American novelist (1897–1962).]
H:–:AA:NA:US:5:2012 Apr 24:[200].

Fet

/fjɛt/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
74.48 km diameter, (−4.81°, 180.16°) [W], quad. H-8.
[*Fet* ← Russ. Афанасий Афанасьевич Фет (Шеншин) **(Afanasi Afanasyevich Fyet [Shenshin]**), Russian poet (1820–1892).]
H:–:AA:EU:RU:5:1985:[201,202].

Fili regio†

/ˈfɪlʌɪ ˈrɛʤjəʊ/
(*US* /- ˈrɛʤjoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Fili* (gen.) ← *filum* (‘string’, reference to the strings of sheep-gut used by Hermes when he invented the lyre) + L. *regio* (‘region’).] [203,204]

Firdousi

/fəːˈdəʊsɪ/
(*US* /fəːɹˈdɔusɪ/)
A crater in the Pieria quadrangle of Mercury.
98.28 km diameter, (3.48°, 294.61°) [W], quad. H-10.
[*Firdousi* ← Pers. حكیم ابوالقاسم فردوسی توسی **[hakīm abu’l-qāsim ferdowsī tūsī]**, Tajik/Persian poet (*c.* 940–1020/1030).]
H:–:AA:AS:PE:5:2010 Mar 03:[205,206].

Flaubert

/fləʊˈbɛː/
(*US* /fləʊˈbɛːɹ/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
95.34 km diameter, (−13.81°, 72.61°) [W], quad. H-7.
[Gustave *Flaubert*, French novelist (1821–1880).]
H:–:AA:EU:FR:5:1985:[207].

Fonteyn

/fɔnˈtɛɪn/
(*US* ˈfanˈtɛɪn)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
29.41 km diameter (32.85°, 264.31°) [W], quad. H-4.
[Margot *Fonteyn*, English ballet dancer (1919–1991).]
H:–:AA:EU:EN:5:2012 Apr 24:[208].

Fram Rupes

/fræm ˈruːpɪz/
A scarp in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
155.59 km diameter, (−57.52°, 93.15°) [W], quad. H-12.
[Norw. *Fram* (ship used by Nansen in the Arctic and by Sverdrup and Amundsen in Antarctica) + L. *rupes* (‘scarp’).]
H:–:RU:EU:NO:5:1976:[209,210].

Futabatei
/fuːtəbaːtɛɪ/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.

57.3 km diameter, $(-16.08°, 83.53°)$ [W], quad. H-07.

[Shimei *Futabatei* ← *symbol* Jap. 二葉亭四迷, Japanese novelist (1864–1909).]

H:–:AA:AS:JA:5:1976:[211,212].

G

Gainsborough
/ˈɡeɪnzbrə/
(*US* /ˈɡeɪnzbʌroʊ/)
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
95.2 km diameter, (−35.76°, 184.45°) [W], quad. H-13.
[Thomas *Gainsborough*, English painter (1727–1788).]
H:–:AA:EU:EN:5:1985:[213].

Gallia
/ˈɡæliə/
Formerly ***Pleias Gallia***
A bright albedo feature crossing the equator of Mercury.
(40°, 120°) [W], quad. H-03.
[L. *Gallia* (Gaul, a region of western Europe during the Roman era) + *Pleias* ← Gk Πλειάς (a Pleiad, one of the seven daughters of Atlas).]
H:–:AL:EU:RM:5:1976:[214,215].

Gaudí
/ɡaʊˈdiː/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
81 km diameter, (76.9°, 290.5°) [W], quad. H-1.
[Antoni *Gaudí* i Cornet, Spanish Catalan modernist architect (1852–1926).]
H:–:AA:EU:SP:5:2012 Aug 6:[818,819].

Gauguin
/ɡəʊˈɡæŋ/
(*US* /ɡoʊˈɡæŋ/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
70.1 km diameter, (66.29°, 100.14°) [W], quad. H-1.
[Paul *Gauguin*, French painter (1848–1903).]
H:–:AA:EU:FR:5:1979:[216].

Geddes
/ˈɡɛdɪs/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
83.53 km diameter, (27.23°, 29.62°) [W], quad. H-2.
[Wilhemina *Geddes*, Irish stained glass artist (1887–1955).]
H:–:AA:EU:IR:5:2010 Mar 03:[217].

Ghiberti
/ɡɪˈbɛːtɪ/
(*US* /ɡɪˈbɛːɹtɪ/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
110.18 km diameter, (−48.44°, 80.08°) [W], quad. H-11.
[Lorenzo *Ghiberti*, Italian sculptor (1378–1455).]
H:–:AA:EU:IT:5:1976:[218].

Gibran
/dʒʊbˈraːn/
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
106.26 km diameter, (35.76°, 111.56°) [W], quad. H-3.
[*Gibran* ← Arab. جبران خليل جبران (**ğibrān ẖalīl ğibrān**), Lebanese–American artist and writer (1883–1931).]
H:–:AA:AS:LE:5:2009 Jul 09:[219,220].

Giotto
/ˈdʒɔtəʊ/
(*US* /ˈdʒatoʊ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
144.21 km diameter, (12.47°, 56.47°) [W], quad. H-6.
[*Giotto* di Bondone, Italian painter (*c.* 1271–1337).]
H:–:AA:EU:IT:5:1976:[221].

Gjöa Rupes
/ʤəʊ ˈruːpɪz/
(*US* /ʤoʊ -/)
A scarp in the Bach (formerly Australia) quadrangle of Mercury.
237.9 km diameter, (−66.89°, 158.5°) [W], quad. H-15.
[*Gjöa* ← Norw. *Gjøa* (Amundsen's Northwest passage ship) + L. *rupes* ('scarp').]
H:–:RU:EU:NO:5:1976:[222,223].

Glinka
/ˈglɪŋkə/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
89.04 km diameter, (14.81°, 112.52°) [W], quad. H-7.
[*Glinka* → Russ. Михаил Иванович Глинка **(Mikhail Ivanovich Glinka)**, Russian composer (1804–1857).]
H:–:AA:EU:RU:5:2008 Nov 20:[224,225].

Gluck
/glʊk/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
100.61 km diameter, (38.07°, 18.61°) [W], quad. H-2.
[Willibald *Gluck*, German composer (1714–1787).]
H:–:AA:EU:GE:5:1979:[226].

Goethe
/ˈgəːtə/
A crater in the Borealis (formerly Borea) quadrant of Mercury.
317.17 km diameter, (81.51°, 53.83°) [W], quad. H-1.
[Johann Wolfgang von *Goethe*, German poet and dramatist (1749–1832).]
H:–:AA:EU:GE:5:1979:[227].

Gogol
/ˈgɔgəl/
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
79.39 km diameter, (−28.29°, 147.38°) [W], quad. H-12.
[*Gogol* ← Russ. Николай Васильевич Гоголь **(Nikolay Vasil'yevich Gogol')**, Russian dramatist and novelist (1809–1852).]
H:–:AA:EU:RU:5:1985:[228,229].

Goldstone Vallis
/ˈgɔldstən ˈvælɪs/
(*US* /ˈgɔldstoʊn -/)
A channel in the Kuiper (formerly Tricrena) quadrangle of Mercury.
103.23 km diameter, (−15.75°, 32.05°) [W], quad. H-6.
[Eng. *Goldstone* Deep Space Communications Complex (radio observatory in California) + L. *vallis* ('valley').]
H:–:VA:NA:AM:5:1976:[230,231].

Goya
/gɔjə/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
138.42 km diameter, (−6.78°, 152.15°) [W], quad. H-8.
[Francisco de *Goya* y Lucientes, Spanish painter (1746–1828).]
H:–:AA:EU:SP:5:1976:[232].

Grainger
/ˈgrɛɪŋʤə/
(*US* ˈgrɛɪŋʤəɹ)
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
112.61 km diameter, (−44.11°, 255.13°) [W], quad. H-13.
[George Percy Aldridge *Grainger*, Australian-born American pianist and composer (1882–1961).]
H:–:AA:OC:AU:5:2012 Apr 24:[233].

Grieg
/griːg/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
58.84 km diameter, $(52.6°, 15.17°)$ [W], quad. H-2.

[Edvard *Grieg*, Norwegian composer (1843–1907).]

H:–:AA:EU:NO:5:1985:[234].

Grotell

/grəˈtɛl/

A crater in the Borealis (formerly Borea) quadrangle of Mercury.
48.25 km diameter, $(71.11°, 31.76°)$ [W], quad. H-1.

[Majlis *Grotell*, Finnish-born American ceramist (1899–1973).]

H:–:AA:EU:FI:5:2012 Apr 24:[235].

Guido d'Arezzo

/ˈgiːdəʊ dæˈrɛtsəʊ/
(*US* /ˈgiːdoʊ dæˈrɛtsoʊ/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
58.04 km diameter, $(-38.37°, 18.49°)$ [W], quad. H-11.

[*Guido d'Arezzo*, Italian musicologist (*c.* 990–1050).]

H:–:AA:EU:IT:5:1976:[236].

H

Hals
/hæls/
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
92.88 km diameter, (−54.87°, 114.96°) [W], quad. H-12.
[Frans *Hals*, Dutch painter (1581/1585–1666).]
H:–:AA:EU:DU:5:1985:[237,238].

Handel
/ˈhændəl/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
138.04 km diameter, (3.64°, 34.06°) [W], quad. H-6.
[George Frederick *Handel* (1685–1759).]
H:–:AA:EU:GE:5:1976:[239].

Han Kan
/ˈhæn ˈkæn/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
50.12 km diameter, (−72.25°, 146.1°) [W], quad. H-15.
[*Han Kan* ← simpl. Chin. 韩干 ← trad. Chin. 韓幹 [**Han**^{2} **Kan**^{4} (W-G); **Hán Gàn** (pin.)], Chinese painter of the Tang Dynasty (706–783).]
H:–:AA:AS:CH:5:1985:[240,241].

Harunobu
/haruːnobuː/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
106.78 km diameter, (14.9°, 140.88°) [W], quad. H-07.
[*Suzuki Harunobu* ← Jap. 鈴木春信, Japanese woodblock artist (1720/1724–1770).]
H:–:AA:AS:JA:5:1976:[242,243].

Hauptmann
/ˈhaʊptmən/
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
118 km diameter, (−23.72°, 180.33°) [W], quad. H-13.
[Gerhart *Hauptmann*, German novelist and dramatist (1862–1946).]
H:–:AA:EU:GE:5:1985:[244].

Hawthorne
/ˈhɔːθɔːn/
(*US* /ˈhɔːθɔːɹn/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
119.9 km diameter, (−51.31°, 115.36°) [W], quad. H-12.
[Nathaniel *Hawthorne*, American novelist (1804–1864).]
H:–:AA:NA:AM:5:1979:[245].

Haydn
/hʌɪdən/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
251.04 km diameter, (−27.27°, 71.45°) [W], quad. H-11.
[Franz Joseph *Haydn*, Austrian composer (1732–1809).]
H:–:AA:EU:AS:5:1976:[246].

Haystack Vallis
/ˈhɛɪstæk ˈvælɪs/
A channel in the Kuiper (formerly Tricrena) quadrangle of Mercury.
264.56 km diameter, (4.79°, 46.63°) [W], quad. H-6.
[Eng. *Haystack* Observatory (a radio observatory in Massachusetts) + L. *vallis* (‘valley’).]
H:–:VA:NA:AM:5:1976:[247,248].

Heemskerck Rupes
/ˈhɛɪmzkəːk ˈruːpɪz/
(*US* /ˈhɛɪmzkəɹk -/)
A scarp in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
320.61 km diameter, (27.38°, 124.62°) [W], quad. H-3.
[Du. *Heemskerck* (one of Tasman's Australia exploration ships) + L. *rupes* ('scarp').]
H:–:RU:EU:DU:5:1976:[249].

Hegemonios†
/hɛʤɪˈməʊnɪəs/
(*US* /hɛʤɪˈmoʊnɪəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Hegemonios* ← Gk (adj.) ἡγεμόνιος (**hēgemonios**), 'of a guide', reference to Hermes' rôle as guide of dead souls.]
[250,251]

Heine
/ˈhʌɪnə/
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
72.68 km diameter, (32.53°, 125.39°) [W], quad. H-3.
[Heinrich *Heine*, German poet (1797–1856).]
H:–:AA:EU:GE:5:1979:[252].

Helii Promontorium†
/ˈhiːlɪʌɪ prɔmənˈtɔːrɪəm/
(*US* /- pramənˈtɔːrɪəm/)
Renamed ***Solitudo Helii***
A dark **albedo feature** on the surface of Mercury.
In Antoniadi's chart just S of Phaethontius, and bounded to the W by Solitudo Maiae, to the S by Solitudo Panos and to the E by Solitudo Iovis.
[L. *Helii* (gen.) ← L. *helius* ('sun') ← Gk Ἥλιος (**hēlios**) + L. *promontorium* ('headland').] [253,254].

Heliocaminus
/hiːlɪəʊcəˈmʌɪnəs/
(*US* /hiːlɪoʊcəˈmʌɪnəs/)
A bright **albedo feature** on Mercury.
Just N of the equator and straddling the central meridian in Antoniadi's chart, bounded by Liguria to the N, Solitudo Criophori to the W, Solitudo Phoenicis and Phaethontias to the S, and Argyritis, Neptuni Vallis and Solitudo Lyrae to the E.
(40°, 170°) [W].
[*Heliocaminus* ← L. *hēliocamīnus* ← Gk ἡλιοκάμινος, a room exposed to the sun.]
H:–:AL:EU:RM:5:1976: [255,256].

Hemingway
/ˈhɛmɪŋwɛɪ/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
132.11 km diameter, (17.56°, 2.95°) [W], quad. H-6.
[Ernest Miller *Hemingway*, American author (1899–1961).]
H:–:AA:NA:AM:5:2009 Jul 09:[257].

Henri
/ˈhɛnri/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
163.8 km diameter (78.69°, 201.08°) [W], quad. H-1.
[Robert *Henri*, American painter (1865–1929).]
H:–:AA:NA:AM:5:2012 Apr 24:[258].

Hermes†
/ˈhəːmiːz/
(*US* /ˈhəɹmiːz/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Hermes* ← Gk Ἑρμῆς **(Hermēs)**, the god Hermes.] [259,260]

Hero Rupes

/ˈhɪərəʊ ˈruːpɪz/
(*US* /ˈhɪəroʊ -/)
A scarp in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
456.45 km diameter, (−58.72°, 171.7°) [W], quad. H-12.

[Eng. *Hero* (Palmer's Antarctic exploration ship) + L. *rupes* ('scarp').]
H:–:RU:NA:AM:5:1976:[261,262].

Hesiod

/ˈhiːʒɪəd/
(*US* /ˈhiːsɪəd/, /ˈhɛsɪəd/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
101.03 km diameter, (−58.24°, 34.22°) [W], quad. H-11.

[*Hesiod* ← L. *Hēsiodus* ← Gk Ἡσίοδος, Greek poet (*c.* 800 B.C.).]
H:–:AA:EU:GR:5:1976:[263,264].

Hesperis

/ˈhɛspərɪs/
A bright **albedo feature** on Mercury.
On the SW limb in Antoniadi's chart, bordered by Solitudo Criophori to the N, Solitudo Persephones to the S, and Solitudo Atlantis and Pieria to the E.
Raditladi region (−45°, 355°) [W], quad. H-14.

[L. *Hesperis* ← Ἑσπερίς **(Hesperis)**, one of the mythical Hesperides.]
H:–:AL:EU:RM:5:1976:[265,266].

Hiroshige

/hirəʃiːgɛɪ/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
138.42 km diameter, (−13.33°, 26.97°) [W], quad. H-6.

[Utagawa *Hiroshige* ← Jap. 歌川広重; a.k.a. Andō Hiroshige ← Jap. 安藤広重, Japanese ukiyoe painter (1797–1858).]
H:–:AA:AS:JA:5:1976:[267,268].

Hitomaro

/hiːtəmaːəʊ/
(*US* /hiːtəmaːoʊ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
105.21 km diameter, (−16.07°, 15.72°) [W], quad. H-6.

[Kakinomoto no *Hitomaro* ← Jap. 柿本人麻呂, early Japanese poet (655–*c.* 700).]
H:–:AA:AS:JA:5:1976:[269,270].

Hodgkins

/ˈhɔʤkɪnz/
(*US* /ˈhaʤkɪnz/)
A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.
19.15 km diameter, (29.22°, 341.74°) [W], quad. H-5.

[Frances *Hodgkins*, New Zealand painter (1869–1947).]
H:–:AA:OC:NZ:5:2009 Jul 09:[271].

Hokusai

/hɔkʊsaɪ/
(*US* /hakʊsaɪ/)
A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.
114.03 km diameter, (57.76°, 343.1°) [W], quad. H-5.

[Katsushika *Hokusai* ← Jap. 葛飾北斎, Japanese ukiyoe painter (1760–1849).]
H:–:AA:AS:JA:5:2010 Mar 03:[272,273].

Holbein

/ˈhɔlbʌɪn/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
115.51 km diameter, (36.11°, 29.74°) [W], quad. H-2.

[Hans (*c.* 1465–1524) and Hans (*c.* 1497–1543) *Holbein*, German painters.]
H:–:AA:EU:GE:5:1979:[274].

Holberg
/ˈhɔlbəːg/
(*US* /ˈhɔlbəːɹg/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
64.4 km diameter, (−67.37°, 59.59°) [W], quad. H-15.
[Ludvig *Holberg*, Norwegian–Danish writer (1684–1754).]
H:–:AA:EU:NO:5:1976:[275].

Holst
/hɔlst/
A crater in the Derain (formerly Pieria) quadrangle of Mercury.
169.95 km diameter, (−17.33°, 314.9°) [W], quad. H-10.
[Gustav Theodore *Holst*, British composer (1874–1934).]
H:–:AA:EU:EN:5:2012 Apr 24:[276].

Homer
/ˈhəʊmə/
(*US* /ˈhoʊməɹ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
318.7 km diameter, (−1.26°, 36.58°) [W], quad. H-6.
[*Homer* ← L. *Homērus* ← Gk Ὅμηρος, Greek epic poet (eighth or ninth century B.C.).]
H:–:AA:EU:GR:5:1976:[277,278].

Hopper
/ˈhɔpə/
(*US* /ˈhɔpəɹ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
35.62 km diameter, (−12.4°, 55.9°) [W], quad. H-6.
[Edward *Hopper*, American realist painter and printmaker (1882–1967.]
H:–:AA:NA:US:5:2012 Dec 19:[838,839].

Horace
/ˈhɔrɪs/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
56.07 km diameter, (−69.31°, 49.9°) [W], quad. H-15.
[*Horace* ← L. Quintus Horātius Flaccus, Roman poet (65–68 B.C..]
H:–:AA:EU:RM:5:1976:[279,280].

Horarum Vallis†
/həˈrɛːrəm ˈvælɪs/
*Renamed **Solitudo Horarum***
A long dark **albedo feature** on the surface of Mercury.
Straddling the eastern part of the equator on Antoniadi's chart, bounded by Pierias to the W, Solitudo Iovis to the S, Solitudo Hermae Trismegisti to the E and Solitudo Lacaonis to the E.
[L. *horarum* ('of the hours') + L. *vallis* ('valley').]
H:–:VA:EU:RM:5:1985:[281].

Hovnatanian
/hɔvnətænˈjæn/
(*US* /havnətænˈjæn/)
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
34.43 km diameter, (−7.73°, 187.17°) [W], quad. H-8.
[Hakop *Hovnatanian*, Armenian painter (1806–1881).]
H:–:AA:AS:AM:5:2008 Nov 20:[282].

Hugo
/ˈhjuːgəʊ/
(*US* /ˈhjuːgoʊ/)
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
206.2 km diameter, (39.58°, 48.54°) [W], quad. H-2.
[Victor *Hugo*, French dramatist and poet (1802–1885).]
H:–:AA:EU:FR:5:1979:[283].

Hun Kal
/ˈhuːn ˈkaːl/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
IAU-defined 20° meridian.

0.93 km diameter, $(-0.41°, 19.94°)$ [W], quad. H-6.

[*Hun Kal* (‘twenty’ in Mayan).]

H:–:AA:SA:MY:5:1976:[284,285].

Hypate†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Hypate* ← Gk Ὑπάτη (**Hypatē**),one of the three Muses of the lyre, whose name was given to the highest of the seven strings of that instrument (when in the position for playing).] [286,287]

Hyphates†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Hyphates* (origin untraced).] [288,289]

I

Ibsen
/ˈɪbsən/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
159.04 km diameter, (−24.38°, 35.91°) [W], quad. H-11.
[Henrik Johan *Ibsen*, Norwegian poet and dramatist (1828–1906).]
H:–:AA:EU:NO:5:1976:[290].

Ictinus
/ɪkˈtʌɪnəs/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
58.03 km diameter, (−79.21°, 175.6°) [W], quad. H-15.
[L. *Ictinus* ← Gk Ἰκτινος **(Iktinos)**, Greek architect (fifth century B.C.).]
H:–:AA:EU:GR:5:1976:[291,292].

Imhotep
/ɪmˈhəʊtɛp/
(*US* /ɪmˈhoʊtɛp/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
158.78 km diameter, (−18.06°, 37.41°) [W], quad. H-6.
[*Imhotep* ← Egypt. *ii-m-ḥtp*, Egyptian physician (*c.* 2686–2613 B.C.).]
H:–:AA:AF:EG:5:1976:[293,294].

Ives
/ʌɪvz/
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
18.42 km diameter, (−32.9°, 112.05°) [W], quad. H-12.
[Charles *Ives*, American composer (1874–1954).]
H:–:AA:NA:AM:5:1979:[295].

Ixionis Vallis†
/ɪkˈsʌɪənɪs ˈvælɪs/
(*US* /ɪkˈsʌɪonɪs -/)
A long dark **albedo feature** on the surface of Mercury.
In Antoniadi's chart, linking Solitudo Criophori to the N and Solitudo Atlantis to the S, and bounded by Pieria to the W and Phaethontius to the E.
[L. *Ixionis* ('of Ixion') ← Gk Ἰξίων **('Ixiōn)** + L. *vallis* ('valley').] [296,297].

Izquierdo
/ɪsˈkjɛədəʊ/
(*US* /ɪsˈkjɛəɹdəʊ/)
A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
174.15 km diameter, (−1.63°, 252.95°) [W], quad. H-9.
[María *Izquierdo*, Mexican painter (*c.* 1902–1955).]
H:–:AA:NA:ME:5:2009 Jul 09:[298].

J

Janáček

/ˈjanətʃɛk/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

47.73 km diameter, (55.6°, 154.88°) [W], quad. H-3.

[Leos *Janáček*, Czech composer (1854–1928).]

H:–:AA:EU:CZ:5:1985:[299].

Jókai

/ˈjəʊkɔɪ/

(*US* /ˈjoʊkɔɪ/)

A crater in the Borealis (formerly Borea) quadrangle of Mercury.

93.27 km diameter, (71.81°, 138.84°) [W], quad. H-1.

[Mór (or Maurus) *Jókai*, Hungarian novelist (1825–1904).]

H:–:AA:EU:HU:5:1979:[300,301].

Joplin

/ˈʤɔplɪn/

A crater in the Debussy (formerly Cyllene) quadrangle of Mercury.

138.98 km diameter, (−38.08°, 334.59°) [W], quad. H-14.

[Scott *Joplin*, American composer (1868–1917).]

H:–:AA:NA:US:5:2012 Dec 19:[840,841].

Judah ha-Levi

/ˈʤuːdə həˈliːvʌɪ/

A crater in the Beethoven (Solitudo Lycaonis) quadrangle of Mercury.

85.61 km diameter, (10.75°, 108.01°) [W], quad. H-7.

[*Jehuda Halevi* ← Heb. יהודה הלוי **[yehuda halevy]**, Spanish Jewish poet and religious philosopher *c.* 1075–1141).]

H:–:AA:AS:JW:5:1976:[302,303].

K

Kālidāsā
/kaːliːˈdaːsə/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
160.97 km diameter, (−18.33°, 179.7°) [W], quad. H-8.
[*Kālidāsā* ← Skr. कालिदास **(kālidāsa)** ← Skr. कालि, '(of) Kāli' + Skr. दास, 'servant', classical Sanskrit poet and dramatist (*fl.* A.D. 5th century).]
H:–:AA:AS:IN:5:1976:[304,305].

Kandinsky
/kænˈdɪnski/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
60 km diameter, (87.9°, 280.1°) [W], quad. H-1.
[Wassily *Kandinsky* ← Russ. Василий Васильевич Кандинский (**Vasiliy Vasil'yevich Kandinskiy**), Russian painter and art theorist (1866–1944).]
H:–:AA:EU:RU:5:2012 Aug 6:[820,821].

Keats
/kiːts/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
107.85 km diameter, (−70.42°, 156.98°) [W], quad. H-15.
[John *Keats*, English poet (1795–1821).]
H:–:AA:EU:EN:5:1976:[306].

Kenkō
/kɛŋkəʊ/
(*US* /kɛŋkoʊ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
105.12 km diameter, (−21.29°, 16.23°) [W], quad. H-6.
[Yashida Ca *Kenkō* ← Jap. 吉田兼好, Japanese Buddhist monk and author (1283–1352).]
H:–:AA:AS:JA:5:1976:[307,308].

Kephalos†
/ˈkɛfələs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Kephalos* ← Gk Κέφαλος **(Kephalos)**, Athenian son of Hermes and Herse.]
[309,310]

Keras†
/ˈkɛrəs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Keras* ← Gk κέρας **(keras)**, 'horn of an animal'.] [311,312]

Kertész
/ˈkɛːtɛs/
(*US* /ˈkɛːɹtɛs/)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
31.55 km diameter, (27.35°, 213.78°) [W], quad. H-4.
[André *Kertész*, Hungarian-born American photographer (1894–1885).]
H:–:AA:NA:AM:5:2008 Apr 08:[313,314].

Keryx†
/ˈkɛɪrɪks/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Keryx* ← Gk κῆρυξ **(kēryx)**, 'herald': (1) Hermes' role as herald of the gods; (2) Keryx, first herald of the Eleusinian Mysteries, and son of Hermes and Agaulos] [315,316].

Khansa
/ˈxansə/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
112.93 km diameter, (−59.03°, 51.76°) [W], quad. H-11.
[*Khansa* ← Arab. الخنساء **(al-ḫansa')**, Arab poet (*d.* ?645).]
H:–:AA:AS:AR:5:1976:[317,318].

Kipling
/ˈkɪplɪŋ/
A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
164.27 km diameter, (−19.35°, 287.95°) [W, quad. H-9].
[Rudyard *Kipling*, English author (1865–1936).]
H:–:AA:EU:EN:5:2010 Mar 03:[319].

Kobro
/ˈkɔbrəʊ/
(*US* /ˈkabroʊ/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
54 km diameter, (−82.2°, 278.8°) [W]. Quad. H-15.
[Katarzyna *Kobro*, a Polish sculptor (1898–1951).]
H:–:AA:EU:PO:5:2012 Dec 19:[842,843].

Kofi
/ˈkəʊfɪ/
(*US* /ˈkoʊfɪ/)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
135.87 km diameter (56.79°, 241.77°) [W], quad. H-4.
[Vincent Akwete *Kofi*, Ghanaian sculptor (1923–1974).]
H:–:AA:AF:GH:5:2012 Apr 24:[320,321].

Komeda
/kəˈmɛdə/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
54 km diameter (−82.9°, 269.9°) [W], quad. H-15.
[Krzysztof *Komeda* (*b.* Krzysztof Trzciński), Polish film music composer and jazz pianisst (1931–1969).]
H:–:AA:EU:PO:5:2012 Dec 19:[844,845].

Kōshō
/kəʊʃəʊ/
(*US* /koʊʃoʊ/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
64.57 km diameter, (59.85°, 139.9°) [W], quad. H-3.
[*Kōshō* ← Jap. 康勝, Japanese sculptor, son of the sculptor Unkei (thirteenth century).]
H:–:AA:AS:JA:5:1985:[322,323].

Kriophoros†
/krɪəˈfɔrəs/
(*US* /krɪəˈfarəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Kriophoros* ← Gk Κριοφόρος **(Kriophoros)**, 'ram-bearer', an epithet applied to Hermes.] [324,325]

Kuan Han-Ch'ing
/gwaːŋ haːnˈtʃɪŋ/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
143.72 km diameter, (29.4°, 53.64°) [W], quad. H-2.
[*Kuan Han-Ch'ing* ← simpl. Chin. 关汉卿 ← trad. Chin. 關漢卿 [**Kuan**¹ **Han**⁴**-ch'ing**¹ (W-G); **Guān Hànqīng** (pin.)], Chinese playwright and poet (*c.* 1225–1302).]
H:–:AA:AS:CH:5:1979:[326,327].

Kuiper
/ˈkɔɪpə/
(*US* /ˈkɔɪpəɹ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

62.32 km diameter, (−11.32°, 31.4°) [W], quad. H-6.

[Gerard Peter *Kuiper*, Dutch–American astronomer (1905–1973).]

H:–:AA:NA:AM:5:1976:[328].

Kunisada

/kuːnɪsaːda/

A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.

241.45 km diameter, (1.36°, 247.12°) [W], quad. H-9.

[Utagawa *Kunisada* ← Jap. 歌川国貞, Japanese woodblock artist (1786–1864).]

H:–:AA:AS:JA:5:2009 Jul 09:[329,330].

Kuranides†

/kʊrəˈnɪdiːz/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Kuranides* ← Gk Κυρανίδες **(Kyranides)**, a fourth century Hermetic magico–medical treatise.] [331,332]

Kurosawa

/kuːrəsaːwə/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

151.68 km diameter, (−52.63°, 21.46°) [W], quad. H-11.

[*Kurosawa* Kinko ← Jap. 黒沢琴古, Buddhist monk and musician (eighteenth century).]

H:–:AA:AS:JA:5:1976:[333,334].

Kyōsai

/kɪəʊsʌɪ/

A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.

38.95 km diameter, (25.24°, 354.97°) [W], quad. H-5.

[Kawanabe *Kyōsai* ← Jap. 河鍋暁斎, Japanese artist (1831–1889)]

H:–:AA:AS:JA:5:2012 Dec 19:[846,847].

L

Lange

/læŋ/

A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.

176.23 km diameter, (6.39°, 259.4°) [W], quad. H-9.

[Dorothea *Lange*, American photographer (1895–1965).]

H:–:AA:NA:AM:5:2009 Jul 09:[335].

Larae regio†

/ˈlaːrə ˈrɛʤəʊ/

(*US* /- ˈrɛʤoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. (gen.) *Larae* ← L. *Lara* (a nymph who was led to the underword by Mercury in punishment for revealing the amorous secrets of Jupiter (also in punishment her tongue was cut out and she became known in Roman mythology as Muta, who bore silent children to Mercury) + L. *regio* ('region').] [336,337].

Leopardi

/lɛɪəʊˈpaːdi/

(*US* /lɛɪoʊˈpaːɹdi/)

A crater in the Bach (formerly Australia) quadrangle of Mercury.

71.45 km diameter, (−72.7°, 183.56°) [W], quad. H-15.

[Conte Giacomo *Leopardi*, Italian poet (1798–1837).]

H:–:AA:EU:IT:5:1976:[338].

Lermontov

/ˈljɛːməntɔf/

(*US* /ˈljɛːɹməntaf/)

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

165.82 km diameter, (15.27°, 48.91°) [W], quad. H-6.

[*Lermontov* ← Russ. Михаил Юрьевич Лермонтов **(Mikhail Yur'yevich Lyermontov)**, Russian poet (1814–1841).]

H:–:AA:EU:RU:5:1976:[339,340].

Lessing

/ˈlɛsɪŋ/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.

95.39 km diameter, (−28.42°, 90.29°) [W], quad. H-12.

[Gotthold Ephraim *Lessing*, German critic and dramatist (1729–1781).]

H:–:AA:EU:GE:5:1985:[341].

Liang K'ai

/lɪˈæŋ ˈkʌɪ/

A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.

144.95 km diameter, (−39.77°, 184.38°) [W], quad. H-13.

[*Liang K'ai* ← simpl. Chin. 梁楷 ← trad. Chin. 梁楷 [**Liang**^{2} **K'ai**^{3} (W-G); **Liáng Kǎi** (pin.)], Chinese painter (*c.* 1140–*c.* 1210).]

H:–:AA:AS:CH:5:1979:[342,343].

Lichani regio†

/ˈlɪkənʌɪ ˈrɛʤəʊ/

(*US* /- ˈrɛʤoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. (gen.) *Lichani* ← L. *lichanus* ← Gk λίχανος **(likhanos)**, 'forefinger', name given to third string of the lyre + L. *regio* ('region').] [344,345].

Lichanos†
/ˈlɪkənəs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Lichanos* ← Gk λίχανος (**likhanos**), 'forefinger', name given to third string of the lyre.] [346,347].

Lichanos hypaton†
/- ˈhʌɪpətən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Lichanos* ← Gk λίχανος (**likhanos**), 'forefinger' + *hypaton* ← Gk ὕπατον (**hypaton**), 'uppermost'; a note in the ancient Greek musical scale.] [348,349]

Lichanos hyperbolaeon†
/- hʌɪpəbəˈliːən/
(*US* /- hʌɪpəɹbəˈliːən/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Lichanos* ← Gk λίχανος (**likhanos**), 'forefinger' + *hyperbolaeon* ← Gk ὕπερβολαιον (**hyperbolaion**), 'outermost'; a note in the ancient Greek musical scale.] [350,351]

Lichanos meson†
/- ˈmiːsən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Lichanos* ← Gk λίχανος (**likhanos**), 'forefinger' + *meson* ← Gk μέσον (**meson**), 'middle'; a note in the ancient Greek musical scale.] [352,353]

Lichanos synemmenon†
/- sɪˈnɛmɪnən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Lichanos* ← Gk λίχανος (**likhanos**), 'forefinger' + *synemmenon* ← Gk συνημμένον (**synemmenon**), 'conjunct'; a note in the ancient Greek musical scale.] [354,355]

Li Ch'ing-Chao
/liː tʃɪŋˈtʃaʊ/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
69.12 km diameter, (−77.91°, 71.4°) [W], quad. H-15.
[*Li Ch'ing-Chao* ← simpl. Chin. 李清照 ← trad. Chin. 李淸照, [**Li**^{3} **Ch'ing**^{1}**-chao**^{4} (W-G); **Lǐ Qīngzhào** (pin.)], Chinese poet (1081–*c.* 1151).]
H:–:AA:AS:CH:5:1976:[356,357].

Liguria
/lɪˈgjuːrɪə/
A bright **albedo feature** on Mercury.
In Antoniadi's chart bounded by Caduceata and Solitudo Aphrodites to the N, Solitudo Alarum and Solitudo Criophori to the W, Heliocaminus to the S, and Argyritis and Solitudo Dionysi to the E.
(45°, 225°) [W].
[*Liguria*, a region of Italy.]
H:–:AL:EU:RM:5:1976:[358,359].

Li Po
/liː ˈpəʊ/
(*US* /- ˈpoʊ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
109.63 km diameter, (17.2°, 35.61°) [W], quad. H-6.
[*Li Po* ← simpl. Chin. 李白 ← trad. Chin. 李白 [**Li**^{3} **Po**^{2} (W-G); **Lǐ Bó** (pin.)], Chinese poet (701-762).Also known as *Li Pai* ← simpl. Chin. 李白 ← trad. Chin. 李白 [**Li**^{3} **Pai**^{2} (W-G); **Lǐ Bái**]]
H:–:AA:AS:CH:5:1976:[360,361].

Lismer
/ˈlɪzmə/
(*US* /ˈlɪzməɹ/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
139.12 km diameter, (81.31°, 193.29°) [W], quad. H-1.

[Arthur *Lismer*, English-born Canadian painter (1885–1969).]
H:–:AA:NA:CA:5:2012 Apr 24:[362].

Liszt
/lɪst/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
78.64 km diameter, (−16.1°, 168.21°) [W], quad. H-8.

[Franz *Liszt*, Hungarian piano virtuoso and composer (1811–1886).]
H:–:AA:EU:HU:5:1985:[363].

Lu Hsun
/luː ˈʃuːn/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
96.41 km diameter, (0.03°, 23.7°) [W], quad. H-6.

[*Lu Hsun* ← simpl. Chin. 魯迅 ← trad. Chin. 鲁迅 **Lu**^{3} **Hsün**^{4} (W-G); **Lŭ Xùn** (pin.), pen name of *Zhou Shuren* ← simpl. Chin. 周树人 ← trad. Chin. 周樹人 **Chou**^{1} **Shu**^{4}**-jen**^{2} (W-G); **Zhōu Shùrén** (pin.), Chinese writer (1881–1936).]
H:–:AA:AS:CH:5:1976:[364,365].

Lyrae regio†
/ˈlɪriː ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. (gen.) *Lyrae* ← L. *lyra* ← Gk λύρα **(lyra)**, 'lyre' + L. *regio* ('region').]
[366,367].

Lysippus
/lʌɪˈsɪpəs/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
154.64 km diameter, (0.7°, 132.78°) [W], quad. H-7.

[L. *Lysippus* ← Gk Λύσιππος **(Lysippos)**, Greek sculptor (fourth century B.C.).]
H:–:AA:EU:GR:5:1976:[368,369].

M

Machaut

/mæˈʃəʊ/

(*US* /mæˈʃoʊ/)

A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle Mercury.

104 km diameter, (−2.04°, 82.33°) [W], quad. H-7.

[Guillaume de *Machaut*, French poet and composer (*c.* 1300–1377).]

H:–:AA:EU:FR:5:1976:[370].

Ma Chih-Yuan

/ˈmaː ˈtʃiː yuːˈaːn/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

196.96 km diameter, (−60.01°, 78.01°) [W], quad. H-11.

[*Ma Chih-Yuan* ← simpl. Chin. 马致远 ← trad. Chin. 馬致遠 [**Ma³ Chih⁴-yüan³** (W-G); **Mǎ Zhìyuǎn** (pin.)], Chinese poet and playwright (*c.* 1250–1321).]

H:–:AA:AS:CH:5:1976:[371,372].

Magritte

/məˈgriːt/

A crater in the Bach (formerly Australia) quadrangle of Mercury.

148.96 km diameter, (−72.86°, 238.66°) [W], quad. H-15.

[René *Magritte*, Belgian painter (1898–1967).]

H:–:AA:EU:BE:5:2012 Apr 24:[373].

Mahler

/ˈmaːlə/

(*US* /ˈmaːləɹ/)

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

103.71 km diameter, (−19.79°, 18.64°) [W], quad. H-6.

[Gustav *Mahler*, Austrian composer (1860–1911).]

H:–:AA:EU:AS:5:1976:[374].

Maia†

/ˈmʌɪə/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. *Maia* ← Gk Μαῖα **(Maia)**, a Pleiad and mother of Hermes.] [375,376]

Maiae regio†

/ˈmʌiji ˈrɛʤəʊ/

(*US* /- ˈrɛʤoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. *Maiae* (gen.) ← L. *Maia* ← Gk Μαῖα **(Maia)** a Pleiad and mother of Hermes + L. *regio* (‘region’).] [377,378].

Mansart

/maːŋˈsaː/

(*US* /maːŋˈsaːɹ/)

A crater in the Borealis (formerly Borea) quadrangle of Mercury.

84.97 km diameter, (72.66°, 123.77°) [W], quad. H-1.

[Jules Hardouin *Mansart*, French architect (*c.* 1646–1708).]

H:–:AA:EU:FR:5:1979:[379].

Mansur

/mænˈsʊə/

(*US* /mænˈsuːɹ/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

94.87 km diameter, (47.34°, 163.52°) [W], quad. H-3.

[Ustad *Mansur* ← Arab. منصور **(manṣūr)**, 17th century Mughal painter.]

H:–:AA:AS:IN:5:1979:[380,381].

March

/maːk/

(*US* /maːɹk/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
83.28 km diameter, (30.92°, 176.22°) [W], quad. H-3.
[Ausiàs *March*, Spanish (Catalan) poet (1397–1459).]
H:–:AA:EU:SP:5:1979:[382,383].

Mark Twain
/ˈmaːk ˈtwɛɪn/
(*US* /ˈmaːɹk -/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
142.41 km diameter, (−10.9°, 138.08°) [W], quad. H-7.
[Samuel Langhorne Clemens (*Mark Twain*), American novelist and satirist (1835–1910).]
H:–:AA:NA:AM:5:1976:[384].

Martí
/maːˈtiː/
(*US* /maːɹˈtiː/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
69.48 km diameter, (−75.92°, 168.03°) [W], quad. H-15.
[José Julian *Martí* y Pérez, Cuban poet and essayist (1853–1895).]
H:–:AA:SA:CU:5:1976:[385].

Martial
/ˈmaːʃəl/
(*US* /ˈmaːɹʃəl/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
51.42 km diameter, (68.37°, 178.25°) [W], quad. H-1.
[*Martial* (Marcus Valerius Martialis), Roman epigrammist (*c.* A.D. 40–103).]
H:–:AA:EU:RM:5:1979:[386].

Matabei
/matabɛɪ/
A crater in the Discovery (formerlySolitudo Hermae Trismegisti) quadrangle of Mercury.
23.52 km diameter, (−39.84°, 13.94°) [W], quad. H-11.
[Iwasa *Matabei* ← Jap. 岩佐又兵衛, Japanese artist (1578–1650).]
H:–:AA:AS:JA:5:2009 Jul 09:[387,388].

Matisse
/məˈtiːs/
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
189.04 km diameter, (−23.79°, 90.11°) [W], quad. H-12.
[Henri *Matisse*, French painter and sculptor (1869–1954).]
H:–:AA:EU:FR:5:1976:[389].

Melville
/ˈmɛlvɪl/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
146.45 km diameter, (22.12°, 9.8°) [W], quad. H-2.
[Herman *Melville*, American novelist (1819–1891).]
H:–:AA:NA:AM:5:1976:[390].

Mena
/ˈmɛɪnə/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
15.19 km diameter, (−0.15°, 124.64°) [W], quad. H-7.
[Juan de *Mena*, Spanish poet (1411–1456).]
H:–:AA:EU:SP:5:1976:[391].

Mendelssohn
/ˈmɛndəlsən/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
291.06 km diameter, (70.07°, 257.45°) [W], quad. H-1.
[Jakob Ludwig Felix *Mendelssohn*, German composer (1809–1847).]
H:–:AA:EU:GE:5:2012 Apr 24:[392].

Mendes Pinto
/ˈmɛndɪs piːnˈtuː/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
192.21 km diameter, (−61.65°, 17.58°) [W], quad. H-11.
[Fernám *Mendes Pinto*, Portuguese prose author (1510–1583).]
H:–:AA:EU:PG:5:1976:[393].

Mercatorum regio†
/ˈmɜːkəˈtɔːrəm ˈrɛʤəʊ/
(*US* /ˈmɜːɹkəˈtɔːrəm ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Mercatorum* (‘of markets’) + L. *regio* (‘region’).] [394,395].

Mercury
/ˈmɜːkjʊri/
(*US* /ˈmɜːɹkjʊri/)
[*also* **Mercurius**†, **Mercurie**†]
The nearest planet to the Sun and smallest of the terrestrial planets.
[Eng. *Mercury* ← L. *Mercurius* (the Roman messenger god) ← L. *merc-* ← *merx* (‘merchandise’) + Etrusc. *-urius*|| Gk Ἑρμῆς (**Hermēs**), son of Zeus and Maia.] [396].

Mese†
/ˈmiːzi/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Mese* ← Gk Μέση (**Mesē**), one of the muses of Delphi whose name was given to the middle string of the lyre.] [397,398]

Mese diezeugmenon†
/- dʌɪəˈzjuːgmɪnən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Mese* ← Gk Μέση (**Mesē**) + *diezeugmenon* ← Gk διεζευγμένον (**diezeugmenon**), ‘disjunct’; a note in the ancient Greek musical scale.] [399,400]

Mese hypaton†
/- ˈhʌɪpətən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Mese* ← Gk Μέση (**Mesē**) + *hypaton* ← Gk ὕπατον (**hypaton**), ’uppermost’; a note in the ancient Greek musical scale.] [401,402]

Mese hyperbolaeon†
/- hʌɪpəbəˈliːən/
(*US* /- hʌɪpəɹbəˈliːən/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Mese* ← Gk Μέση (**Mesē**) + *hyperbolaeon* ← Gk ὑπερβολαιον (**hyperbolaion**), ’outermost’; a note in the ancient Greek musical scale.] [403,404]

Mese meson†
/- ˈmiːzən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Mese* ← Gk Μέση (**Mesē**) + *meson* ← Gk μέσον (**meson**), ’middle’; a note in the ancient Greek musical scale.] [405,406]

Michelangelo
/mʌɪkəlˈænʤələʊ/
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
229.71 km diameter, (−44.9°, 109.73°) [W], quad. H-12.
[*Michelangelo* Buonarroti, Italian painter, sculptor and architect (1475–1564).]
H:–:AA:EU:IT:5:1976:[407].

Mickiewicz

/mɪtskjɛvɪtʃ/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

102.69 km diameter, (23.15°, 103.3°) [W], quad. H-3.

[Adam Bernard *Mickiewicz*, Polish poet (1798–1855).]

H:–:AA:EU:PO:5:1976:[408,409].

Milton

/ˈmɪltən/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.

180.85 km diameter, (−26.12°, 175.01°) [W], quad. H-12.

[John *Milton*, English poet (1608–1674).]

H:–:AA:EU:EN:5:1976:[410].

Mirni Rupes

/ˈmɪənɪ ˈruːpɪz/
(*US* /ˈmɪəɹnɪ -/)

A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

258.02 km diameter, (−38.54°, 39.01°) [W], quad. H-11.

[*Mirni* ← Russ. *Мирный* (***Mirniy***) (‘peaceful’, Bellingshausen’s Antarctic exploration ship) + L. *rupes* (‘scarp’). Fabian Gottlieb von Bellingshausen was a Russian mariner.]

H:–:RU:EU:RU:5:1976:[411,412].

Mistral

/mɪˈstraːl/

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

101.93 km diameter, (4.71°, 54.58°) [W], quad. H-6.

[Gabriela *Mistral*, Chilean poet (1889–1957).]

H:–:AA:SA:CH:5:1976:[413].

Mofolo

/ˈmɔfələʊ/
(*US* /ˈmafəloʊ/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

103.16 km diameter, (−37.82°, 28.18°) [W], quad. H-11.

[Thomas Mokopu *Mofolo*, South African (Basotho) novelist (1876/1877–1948).]

H:–:AA:AF:LE:5:1976:[414,415].

Molière

/mɔlɪˈɛː/
(*US* /mɔlɪˈɛːɹ/)

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

139.26 km diameter, (15.45°, 17.39°) [W], quad. H-6.

[Jean Baptiste Poquelin (*Molière*), French actor and dramatist (1622–1673).]

H:–:AA:EU:FR:5:1976:[416].

Monet

/mɔˈnɛɪ/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

203.1 km diameter, (44.25°, 9.66°) [W], quad. H-2.

[Claude *Monet*, French painter (1840–1926).]

H:–:AA:EU:FR:5:1979:[417].

Monteverdi

/mɔntɪˈvɛːdi/
(*US* /mantɪˈvɛːɹdi/)

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

133.57 km diameter, (64.5°, 80.88°) [W], quad. H-2.

[Claudi *Monteverdi*, Italian composer (1567–1643).]

H:–:AA:EU:IT:5:1979:[418].

Moody

/ˈmuːdi/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.

82.57 km diameter, (−13.21°, 215.03°) [W], quad. H-8.

[Ronald *Moody*, Jamaican sculptor and painter (1900–1984).]
H:–:AA:SA:JM:5:2008 Nov 20:[419].

Mozart

/ˈməʊtsaːt/
(*US* /ˈmoʊtsaːɹt/)
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
241.04 km diameter, (7.79°, 190.41°) [W], quad. H-8.
[Wolfgang Amadeus *Mozart*, Austrian composer (1756–1791).]
H:–:AA:EU:AS:5:1976:[420].

Munch

/mʊŋk/
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
57.04 km diameter, (40.54°, 206.95°) [W], quad. H-4.
[Edvard *Munch*, Norwegian painter (1863–1944).]
H:–:AA:EU:N:O5:2008 Nov 20:[421,422].

Munkácsy

/ˈmʊŋkaːtʃɪ/
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
193.36 km diameter, (22.04°, 258.85°) [W], quad. H-4.
[Mihály *Munkácsy*, Hungarian painter (1844–1900).]
H:–:AA:EU:HU:5:2009 Jul 09:[423,424].

Murasaki

/muːrəˈsaːkɪ/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
132.24 km diameter, (−12.5°, 30.5°) [W], quad. H-6.
[*Murasaki* Shikibu ← Jap. 紫式部, Japanese novelist and poet (978–1014/1026).]
H:–:AA:AS:JA:5:1976:[425,426].

Mussorgskij

/mʊˈsɔːgski/
(*US* /mʊˈsɔːɹgski/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
115.71 km diameter, (32.74°, 97.62°) [W], quad. H-3.
[*Mussorgskij* ← Russ. Модест Петрович Мусоргский **(Modyest Pyetrovich Musorgskiy)**, Russian composer (1839–1881).]
H:–:AA:EU:RU:5:1979:[427,428].

Myron

/ˈmʌɪrən/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
25.13 km diameter, (71.22°, 84.9°) [W], quad. H-1.
[*Myron* ← Μὺρον, Greek sculptor (*fl.* *c.* 480–440 B.C.).]
H:–:AA:EU:GR:5:1979:[429,430].

N

Nabokov

/nəˈbɔkɔf/
(*US* /nəˈbakaf/)
A crater in the Derain (formerly Pieria) quadrangle of Mercury.
165.54 km diameter, (−14.59°, 304.27°) [W], quad. H-10.
[*Nabokov* ← Russ. Владимир Владимирович Набоков **(Vladimir Vladimirovich Nabokov)**, Russian-born American writer (1899–1977).]
H:–:AA:EU:RU:5:2012 Apr 24:[431,432].

Nampeyo

/ˈnæmpɛɪəʊ/
(*US* /ˈnæmpɛɪoʊ/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
49.2 km diameter, (−40.26°, 49.89°) [W], quad. H-11.
[Iris *Nampeyo*, Hopi Potter (*c.* 1860–1942).]
H:–:AA:NA:HO:5:1976:[433,434].

Navoi

/nəˈvɔɪ/
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
68.68 km diameter, (58.82°, 199.41°) [W], quad. H-4.
[*Alisher Navoi* ← Russ. Навой **(Navoy)** ← Uz. Навоий **(Navoiy)**, Uzbek poet (1441–1501).]
H:–:AA:AS:UZ:5:2008 Nov 20:[435,436].

Nāwahī

/nəˈwahɪ/
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
37.8 km diameter, (35.91°, 214.66°) [W], quad. H-4.
[Joseph *Nawahi* ← Joseph Kahoʻoluhi Nāwahī, Hawaiian painter (1842–1896).]
H:–:AA:OC:HA:5:2008 Nov 20:[437].

Necropompos†

/ˈnɛkrəpɔmpəs/
(*US* /ˈnecrəpampəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Necropompos* ← Gk νεκροπομπός **(nekropompos)** ← νεκρός **(nekros)**, ‘corpse’ + πέμπω **(pempō)**, ‘I send’; epithet applied to Hermes in his rôle as conductor of the dead.] [438,439]

Neptuni Vallis†

/nɛpˈtjuːnʌɪ ˈvælɪs/
Renamed ***Solitudo Neptuni***
A long dark **albedo feature** on the surface of Mercury.
In Antoniadi’s chart bounded by Argyritis to the N, Heliocaminus to the W, Solitudo Lyrae to the S, and Pleias and Admeti Vallis to the E.
[L. (gen.) *Neptūni* ← *Neptunus* (‘Neptune’) + L. *vallis* (‘valley’).] [440,441].

Neruda

/nɪˈruːdə/
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
111.55 km diameter, (−52.61°, 234.2°) [W], quad. H-13.
[Pablo *Neruda*, Chilean poet (1904–1973).]
H:–:AA:SA:CH:5:2008 Apr 08:[442].

Nervo

/ˈnɛːvəʊ/
(*US* /ˈnɛːɹvoʊ/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

66.32 km diameter, (42.63°, 179.72°) [W], quad. H-3.

[Juan Crisóstomo Ruiz de (Amado) *Nervo*, Mexican poet (1870–1919).]

H:–:AA:NA:ME:5:1979:[443].

Nete hypaton†

/ˈniːti ˈhʌɪpətən/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Nete* ← Gk Νήτη **(Nēte)**, one of the three muses of the lyre, after whom the lowest note on that instrument is named + *hypaton* ← Gk ὕπατον **(hypaton)**, 'uppermost'; a note in the ancient Greek musical scale.] [444,445]

Nete meson†

/- ˈmiːzən/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Nete* ← Gk Νήτη **(Nēte)**, one of the three muses of the lyre, after whom the lowest note on that instrument is named + *meson* ← Gk μέσον **(meson)**, 'middle'; a note in the ancient Greek musical scale.] [446,447]

Netes regio†

/ˈniːtiːz ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Netes* ← L. *Nētēs* (gen.) ← L. *Nētē* ← Gk Νήτη **(Nētē)**, 'Nete,' one of the three muses of Delphi, after whom the lowest note of the lyre was named + L. *regio* ('region').] [448,449].

Neumann

/ˈnɔɪmən/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

122.16 km diameter, (−37.26°, 34.53°) [W], quad. H-11.

[Balthasar *Neumann*, German architect (1687–1753).]

H:–:AA:EU:GE:5:1976:[450].

Nizāmī

/nɪzaːˈmiː/

A crater in the Bach (Australia) quadrangle of Mercury.

76.88 km diameter, (70.38°, 167.12°) [W], quad. H-01.

[*Nizāmī* ← Kurd. نيزامي گه نجەوي [**nîzamî gencewî**] ← Pers. نظامي گنجوى, [**nezāmī ganjavi**], Persian epic poet (*c.* 1141–1209).]

H:–:AA:AS:PE:5:1979:[451,452].

Nomios†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Nomios* ← Gk Νόμιος **(nomios)**, 'of shepherds or pastures', referring to Hermes' rôle as patron of shepherds.] [453,454]

Nureyev

/nʊˈrɛɪɛf/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.

16.24 km diameter (11.63°, 173.05°) [W], quad. H-8.

[*Nureyev* ← Bashkir Рудольф Хәмит улы Нуриев **(Rudol'f Xämit uly Nuriev)** ← Tatar **(Rudolf Xämit uli Nuriev)** ← Russ. Рудольф Хаметович Нуреев **(Rudol'f Khametovich Nureyev)**, Bashkir–Tatar Soviet-born British ballet dancer (1938–1993).]

H:–:AA:EU:RU:5:2012 Apr 24:[455,456].

O

Odin Planitia
/ˈəʊdɪn pləˈnɪʃə/
(*US* /ˈoʊdɪn -/)
A low plain in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
472.84 km diameter, (23.84°, 170.04°) [W], quad. H-3.
[*Odin* ← ON Óðinn (Norse god) + L. *planitia* ('plain').]
H:–:PL:EU:NO:5:1976:[457,458].

Ōkyo
/əʊkjəʊ/
(*US* /oʊkjoʊ/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
65.65 km diameter, (−69.95°, 74.36°) [W], quad. H-15.
[Maruyama *Ōkyo* ← Jap. 円山応挙 Japanese painter (1733-95).]
H:–:AA:AS:JA:5:1985:[459,460].

Oneiraton†
/ɔnɛɪˈraːtən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Oneiraton* ← Gk (gen.) ὀνειράτων (**oneiratōn**), 'of dreams': Hesiod, *Homeric Hymns* iv. 14. calls Hermes 'bringer of dreams'.] [461,462]

Oneiraton regio†
/ɔnɛɪˈraːtən ˈrɛʤəʊ/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Oneiraton* ← Gk (gen.) ὀνειράτων (**oneiratōn**), 'of dreams': Hesiod, *Homeric Hymns* iv. 14. calls Hermes 'bringer of dreams') + L. *regio* ('region'.] [463,464].

Oneiropompi regio†
/ɔnɛɪrəˈpɔmpɪ ˈrɛʤəʊ/
(*US* /-ˈpampɪ ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Oneiropompi* ← Gk ὀνειροπομπός (**oneiropompos**) ← ὄνειρον (**oneiron**), 'dream' + πέμπω (**pempō**), 'I send'; 'conductor of dreams' (an epithet applied to Hermes) + L. *regio* ('region').] [465,466].

Oneiropompos†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Oneiropompos* ← Gk ὀνειροπομπός (**oneiropompos**) ← ὄνειρον (**oneiron**), 'dream' + πέμπω (**pempō**), 'I send'; 'conductor of dreams' (an epithet applied to Hermes).] [467,468]

Oskison
/ˈɔskɪsən/
(*US* /ˈaskɪsən/)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
121.88 km diameter, (60.38°, 214.64°) [W], quad. H-4.
[John Milton *Oskison*, Cherokee author (1874–1947).]
H:–:AA:NA:CE:5:2008 Nov 20:[469].

Ovid
/ˈɔvɪd/
(*US* /ˈavɪd/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
41.59 km diameter, (−69.62°, 22.25°) [W], quad. H-15.
[*Ovid* ← Publius Ovidius Naso (43 B.C.–A.D. 17).]
H:–:AA:EU:RM:5:1976:[470,471].

P

Pantheon Fossae

/ˈpænθɪən ˈfɔsi/
(*US* /- ˈfasɪ/)
A long, narrow depression straddling the Apollodorus crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
311.49 km length, (30.19°, 197.17°) [W], quad. H-4.
[*Pantheon*, domed Roman building by Marcus Agrippa and Hadrian (A.D. 118–128) + L. *fossae* ('ditches').]
H:–:FO:EU:RM:5:2008 Apr 08:[472,473].

Paramese†

/pærəˈmiːzi/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Paramese* ← Gk παραμέση **(paramesē)**, (1) the string that is next to the mese on the lyre, (2) a note in the ancient Greek musical scale.] [474,475]

Paramese hypaton†

/- ˈhʌɪpətən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Paramese* ← Gk παραμέση **(paramesē)**, (1) the string that is next to the mese on the lyre, (2) a note in the ancient Greek musical scale + *hypaton* ← Gk ὕπατον **(hypaton)**, 'uppermost'; a note in the ancient Greek musical scale.] [476,477]

Paramese meson†

/- ˈmiːzən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Paramese* ← Gk παραμέση **(paramesē)**, (1) the string that is next to the mese on the lyre, (2) a note in the ancientGreek musical scale + *meson* ← Gk μέσον **(meson)**, 'middle'; a note in the ancient Greek musical scale.] [478,479]

Parameses regio†

/pærəˈmiːziːz ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[Parameses ← L. *Paramesēs* (gen.) ← Gk παραμέση **(paramesē)**, (1) the string that is next to the mese on the lyre, (2) a note in the ancient Greek musical scale + L. *regio* ('region').] [480,481].

Paranete†

/pærəˈniːti/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Paranete* ← L. *paranētē* ← Gk παρανήτη **(paranētē)**, (1) the penultimate string of the lyre, (2) the note before the highest in the ancient Greek musical scale.] [482,483]

Paranetes regio†

pærəˈniːtiːz ˈrɛʤəʊ
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Paranetes* ← L. (gen.) *paranētēs* ← L. *paranētē* ← Gk παρανήτη **(paranētē)**, (1) the penultimate string of the lyre, (2) the note before the highest in the ancient Greek musical scale + L. *regio* ('region').] [484,485].

Parhypate†

/paːˈhʌɪpəti/
(*US* /paːɹˈhʌɪpəti/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Parhypate* ← L. *parhypatē* ← Gk παρυπάτη **(parypatē)**, (1) the string below the highest string on the lyre, (2) the second-highest note in the ancient Greek musical scale.] [486,487]

Parhypate hypaton†

/- ˈhʌpətən/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Parhypate* ← L. *parhypatē* ← Gk παρυπάτη **(parypatē)**, (1) the string below the highest string on the lyre, (2) the second-highest note in the ancient Greek musical scale + *hypaton* ← Gk ὕπατον **(hypaton)**, 'uppermost'; a note in the ancient Greek musical scale.] [488,489]

Parhypates regio†

/pa:ˈhʌɪpəti:z ˈrɛʤəʊ/

(*US* pa:ɹˈhʌɪpəti:z ˈrɛʤoʊ)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Parhypates* ← L. (gen.) *parhypatē* ← L. *parhypatē* ← Gk παρυπάτη **(parypatē)**, (1) the string below the highest string on the lyre, (2) the second-highest note in the ancient Greek musical scale + L. *regio* ('region').] [490,491].

Pasch

/pæʃ/

A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
36.66 km diameter, (46.14°, 225.13°) [W], quad. H-4.

[Ulrica Fredrica *Pasch*, Swedish painter (1735–1796).]

H:–:AA:EU:SW:5:2012 Apr 24:[492].

Pedilla†

/ˈpɛdɪlə/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Pedilla** ← Gk πέδιλα **(pedila)**, 'sandals', reference to Hermes' winged sandals.] [493,494]

Pelene†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Pelene** ← Gk Πελληνῆς **(Pellēnēs)**, a town in Achaea to which Hermes took Castor and Pollux.] [495,496]

Pentas

/ˈpɛntəs/

A bright circular **albedo feature** on Mercury.

In Antoniadi's chart bounded by Solitudo Aphrodites to the N, Solitudo Argyphontae to the W, Solitudo Criophori to the S and Solitudo Alarum to the E.

(5°, 310°) [W].

H:–:AL:EU:RM:5:1976:[497,498].

Petasi regio†

/ˈpɛtəsʌɪ rɛʤəʊ/

(*US* /- rɛʤoʊ/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. (gen.) *Petasi* ← L. *petasus* ← Gk πέτασος **(petasos)**, 'winged hat' (worn by Hermes) + L. *regio* ('region').] [499,500].

Petasus†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[L. *Petasus* ← Gk πέτασος **(petasos)**, 'winged hat' (as worn by Hermes).] [501,502]

Petipa

/pɛtɪˈpa:/

A crater in the Derain (formerly Pieria) quadrangle of Mercury.
12.03 km diameter, (11.52°, 339.02°) [W], quad. H-10.

[Marius *Petipa*, French-born Russian dancer and choreographer (1818–1910).]
H:–:AA:EU:FR:5:2012 Apr 24:[503].

Petrarch
/ˈpiːtraːk/
(*US* /ˈpiːtraːɹk/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
166.66 km diameter, (−30.47°, 26.3°) [W], quad. H-11.
[Francesco *Petrarca*, Italian poet (1304–1374).]
H:–:AA:EU:IT:5:1976:[504].

Petronius
/pɪˈtrəʊnɪəs/
(*US* /pɪˈtroʊnɪəs/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
36 km diameter, (86.3°, 44.7°) [W], quad. H-1.
[Gaius *Petronius*, Roman author and *Arbiter Elegantiae* ('judge of elegance') at the court of Nero (*d.* A.D. 66).]
H:–:AA:EU:RM:5:2012 Aug 6:[822,823].

Phaethontias
/fɛɪəˈθɔnʃəs/
(*US* /fiːˈθantɪəs/)
A long bright **albedo feature** on Mercury.
In Antoniadi's chart bounded by Solitudo Phoenicis to the N, Ixionis Vallis to the W, Cyllene and Solitudo Maiae to the S, and the southern tip of Neptuni Vallis to the E.
H-8, Tolstoj region (0°, 167°) [W].
[L. *Phaëthontius* ('land of Phaethon') ← Gk Φαέϑων **(Phaëthōn)**, 'Phaeton', son of Helios and Clymene.]
H:–:AL:EU:RM:5:1976:[505,506].

Phara†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Phara* ← Gk Φάρα **(Phara)**, a site consecrated to Hermes.] [507,508]

Pheneos†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Pheneos* ← Gk Φενεός **(Pheneos)**, a hill facing Cyllene, birthplace of Hermes.] [509,510]

Phidias
/ˈfʌɪdɪəs/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
168.46 km diameter, (8.94°, 149.67°) [W], quad. H-8.
[*Phidias* ← Φειδίας **(Pheidias)**, Greek sculptor (*fl. c.* 490–430 B.C.).]
H:–:AA:EU:GR:5:1976:[511,512].

Philoxenus
/fɪˈlɔksɪnəs/
(*US* /fɪˈlaksɪnəs/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
86.72 km diameter, (−8.68°, 111.71°) [W], quad. H-7.
[L. *Philoxenus* ← Φιλόξενος **(Philoxenos)**, Greek lyric poet (436–380 B.C.).]
H:–:AA:EU:GR:5:1976:[513,514].

Picasso
/pɪˈkæsəʊ/
(*US* /pɪˈkæsoʊ/)
A crater in the Derain (formerly Pieria) quadrangle of Mercury.
134.32 km diameter, (3.37°, 309.84°) [W], quad. H-10.
[Pablo *Picasso*, Spanish-born French painter and sculptor (1881–1973).]
H:–:AA:EU:FR?:5:2010 Mar 3:[515].

Pieria
/pʌɪˈɪərɪə/
A bright **albedo feature** on Mercury.
In Antoniadi's chart bounded by Solitudo Criophori to the N, Hesperis to the W, Solitudo Atlantis to the S and Ixionis Vallis to the E.
Unimaged H-10 region (0°, 270°) [W].
[*Pieria* ← Πιερία **(Pieria)**, a region in Thessaly, the attributive form being applied to the Muses (Πιερίδες) and poetic composition.]
H:–:AL:EU:RM:5:1976:[516,517].

Pigalle
/pɪˈgaːl/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
152.93 km diameter, (−37.56°, 9.69°) [W], quad. H-11.
[Jean Baptiste *Pigalle*, French sculptor (1714–1785).]
H:–:AA:EU:FR:5:1976:[518].

Plectri regio†
/ˈplɛktrʌɪ ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Plectri* ← L. *plectrum* ← Gk πλῆκτρον **(plēktron)**, an instrument for striking the strings of a lyre + L. *regio* ('region').] [519,520].

Plectron†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Plectron* ← Gk πλῆκτρον **(plēktron)**, an instrument for striking the strings of a lyre.] [521,522]

Pleias
/ˈplʌɪəs/
A long bright **albedo feature** on the surface of Mercury.
In Antoniadi's chart bounded by Admeti Vallis and Neptuni Vallis to the N, Solitudo Lyrae to the W, Solitudo Iovis to the S and Horarum Vallis to the E. (15°, 140°) [W].
[L. *Pleias* ← Gk Πλειάς **(Pleias)**, one of the Pleiades.]
H:–:AL:EU:RM:5:1976:[523,524].

Pleias Gallia†
/ˈplʌɪəs ˈgælɪə/
Now Gallia
[*Pleias* ← Gk Πλειάς **(pleias)** + L. *Gallia* (Gaul).]
H:–:AL:EU:RM:6:1976.[525,526]

Po Chü-I
/ˈbəʊ ˈʤuː ˈiː/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
69.7 km diameter, (−6.95°, 165.29°) [W], quad. H-8.
[*Po Chü-I* ← simpl. Chin. 白居易 ← trad. Chin. 白居易 [**Po**[2] **Chü**[1]**-i**[4] (W-G); **Bái Jūyì** (pin.)], Chinese poet (772–846).]
H:–:AA:AS:CH:5:1976:[527,528].

Poe
/pəʊ/
(*US* /poʊ/)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
76.66 km diameter, (43.88°, 200.7°) [W], quad. H-4.
[Edgar Allan *Poe*, American author (1809–1849).]
H:–:AA:NA:AM:5:2008 Nov 20:[529].

Poimandres†
/pɔɪˈmændrɛs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Poimandres* ← Gk Ποιμάνδρης **(Poimandrēs)** ← Egypt. *Peime-nte-rē* ('Understanding of Re'), a chapter of the *Corpus hermeticum*.] [530,531]

Polygios†

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Polygios* ← Gk Πολυγιος **(polygios)**, an epithet of Hermes at Troezen.] [532,533]

Polygnotus

/pəlɪɡˈnəʊtəs/
(*US* /pəlɪɡˈnoʊtəs/)

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
124.07 km diameter, (−0.04°, 69.21°) [W], quad. H-6.

[L. *Polygnotus* ← Gk Πολύγνωτος **(Polygnotos)**, Greek painter (*c.* 500–400 B.C.).]
H:–:AA:EU:GR:5:1976:[534,535].

Popova

/pəˈpɒvə/
(*US* /pəˈpavə/)

A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
34.74 km diameter, (−34.7°, 66.65°) [W], quad. H-11.

[Lyubov Sergeyevna *Popova* ← Russ. Любовь Сергеевна Попова **(Lyubov' Syergyeyevna Popova)**, a Russian Cubist, Suprematist and Constructivist painter and designer (1889–1924).]
H:–:AA:EU:RU:5:2012 Dec 19:[848,849].

Pourquoi-Pas Rupes

/ˈpʊəkwaː ˈpaː ˈruːpɪz/
(*US* /ˈpuːɹkwaː - -/)

A scarp in the Michelangelo (formerly Solitudo Promethei) quadrangle Mercury.
164.65 km diameter, (−58.54°, 156.17°) [W], quad. H-12.

[*Pourquoi-Pas Rupes* ← Fr. *Pourquoi Pas* (Charcot's Antarctic exploration ship) + L. *rupes* ('scarp').]
H:–:RU:EU:FR:5:1976:[536,537].

Po Ya

/ˈbəʊ ˈjaː/
(*US* /ˈboʊ -/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
101 km diameter, (−45.98°, 20.06°) [W], quad. H-11.

[*Po Ya* ← simpl. Chin. 伯牙 ← trad. Chin. 伯牙 [**Po²yü²** (W-G); **Bóyá** (pin.)], (eighth century B.C.?).]
H:–:AA:AS:CH:5:1976:[538,539].

Praxiteles

/præˈksɪtɪliːz/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
198.08 km diameter, (27.26°, 60.3°) [W], quad. H-2.

[L. *Praxiteles* ← Gk Πραξιτέλης **(Praxitelēs)**, Greek sculptor (*fl.* 370–330 B.C.).]
H:–:AA:EU:GR:5:1979:[540,541].

Prokofiev

/prəˈkɔfyev/
(*US* /prəˈkafyev/)

A crater in the Borealis (formerly Borea) quadrangle of Mercury.
112 km diameter, (86°, 296.3°) [W], quad. H-1.

[Sergey *Prokofiev* ← Russ. Сергей Сергеевич Прокофьев (**Sergyey Sergyeyevich Prokof'yev**), Russian composer (1891–1953).]
H:–:AA:EU:RU:5:2012 Aug 6:[824,825].

Promaxos†

/ˈprɔməkəs/
(*US* /ˈpraməkəs/)

A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Promaxos** ← Gk πρόμαχος **(promakhos)**, 'champion', an epithet applied to Hermes.] [542,543]

Proust
/pruːst/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
145.09 km diameter, (19.55°, 47.65°) [W], quad. H-6.
[Marcel *Proust*, French novelist (1871–1922).]
H:–:AA:EU:FR:5:1976:[544].

Psychagogos†
/sʌɪkəˈɡəʊɡəs/
(*US* /sʌɪkəˈɡoʊɡəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Psychagogos* ← Gk ψυχαγωγός **(psychagōgos)** ← ψυχή **(psychē)**, 'soul' + ἄγω **(agō)**, 'I lead'; 'leading souls to the netherworld, an epithet applied to Hermes'.] [545,546]

Psychopompi regio†
/ˈsʌɪkəʊpɒmpʌɪ ˈrɛʤəʊ/
(*US* /ˈsʌɪkoʊpampʌɪ ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Psychopompi* ← L. *psychopompus* ← Gk ψυχοπομπός **(psychopompos)** ← ψυχή **(psychē)**, 'soul' + πέμπω **(pempo)**, 'I send'; 'sender of dead souls to the netherworld', an epithet applied to Hermes + L. *regio* ('region').] [547,548].

Psychopompos†
/ˈsʌɪkəʊpɒmpəs/
(*US* /ˈsʌɪkəʊpampəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Psychopompos* ← Gk ψυχοπομπός **(psychopompos)** ← ψυχή **(psychē)**, 'soul' + πέμπω **(pempo)**, 'I send'; 'sender of dead souls to the netherworld', an epithet applied to Hermes.] [549,550].

Pteri regio†
/ˈtɛrʌɪ ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Pteri* ← *pteron* ← Gk πτερόν **(pteron)**, 'wing' (referring to the winged hat and sandals of Hermes) + L. *regio* ('region').] [551,552].

Pteron†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Pteron* ← Gk πτερόν **(pteron)**, 'wing' (referring to the winged hat and sandals of Hermes).] [553,554]

Puccini
/puːˈtʃiːni/
A crater in the Bach (formerly Australia) quadrangle of Mercury.
76.27 km diameter, (−65.42°, 45.23°) [W], quad. H-15.
[Giacomo *Puccini*, Italian composer (1858–1924).]
H:–:AA:EU:IT:5:1976:[555].

Purcell
/ˈpəːsəl/
(*US* /ˈpuːrsəl/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.

87.67 km diameter, (80.35°, 152.55°) [W], quad. H-1.

[Henry *Purcell*, English composer (1659–1695).]

H:–:AA:EU:EN:5:1979:[556].

Pushkin

/ˈpʊʃkɪn/

A crater in the Bach (formerly Australia) quadrangle of Mercury.
232.1 km diameter, (−65.3°, 21.7°) [W], quad. H-15.

[*Pushkin* ← Russ. Александр Сергеевич Пушкин **(Alyexandr Syergyeyevich Pushkin)**, Russian poet (1799–1837).]

H:–:AA:EU:RU:5:1976:[557,558].

Q

Qi Baishi

/ˈtʃiː ˈbaɪˈʃiː/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.

14.91 km diameter, $(-4.3°, 195.53°)$ [W], quad. H-8.

[*Qi Baishi* ← simpl. Chin. 齐白石 ← trad. Chin. 齊白石 [**Ch'i**^{2} **Pai**^{2}**-shih**^{2} (W-G); **Qí Báishí** (pin.)], Chinese painter (1864–1957).]

H:–:AA:AS:CH:5:2008 Nov 20:[559,560].

Qiu Ying

/tʃjuː jɪŋ/

A crater in the Borealis (formerly Borea) quadrangle of Mercury.

20 km diameter, $(82.6°, 87.5°)$ [W], quad. H-1.

[*Qiu Ying* ← Chin. 仇英 ← [**Ch'iu**^{2} **Ying**^{1} (W-G); **Qiú Yīng** (pin.)], Chinese painter (1494–1552).]

H:–:AA:AS:CH:5:2012 Aug 6:[830,831].

R

Rabelais

/ˈræbəlɛɪ/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

154.29 km diameter, $(-60.44°, 61.84°)$ [W], quad. H-11.

[François *Rabelais*, French writer (*c.* 1483–1553).]

H:–:AA:EU:FR:5:1976:[561].

Rachmaninoff

/rəkˈmænɪnɔf/

(*US* /rəkˈmænɪnaf/)

A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.

305.62 km diameter, $(27.79°, 302.42°)$ [W], quad. H-5.

[*Rachmaninoff* ← Russ. Сергей Васильевич Рахманинов **(Sergyey Vasil'yevich Rakhmaninov)**, Russian composer, pianist and conductor (1873–1943).]

H:–:AA:EU:RU:5:2010 Mar 18:[562,563].

Raden Saleh

/ˈrɔdɛn ˈsɔlɛɪ/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.

22.64 km diameter, $(2.06°, 201.07°)$ [W], quad. H-8.

[*Raden Saleh*, Javanese painter (1807–1880).]

H:–:AA:AS:ID:5:2008 Nov 20:[564,565].

Raditladi

/rædɪtˈlaːdi/

A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.

257.66 km diameter, $(27.11°, 240.83°)$ [W], quad. H-4.

[Leetile Disang *Raditladi*, Botswanan playwright and poet (1910–1971).]

H:–:AA:AF:BT:5:2008 Apr 08:[566,567].

Rajnis

/ˈrʌɪnɪs/

A crater in the Beethoven (formerly Solitudo Lycaonis) of Mercury.

79.7 km diameter, $(4.36°, 96.13°)$ [W], quad. H-7.

[Ya *Rajnis*, Latvian poet (1865–1925).]

H:–:AA:EU:LV:5:1976:[568].

Rameau

/rəˈməʊ/

(*US* /rəˈmoʊ/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

58.01 km diameter, $(-54.53°, 37.19°)$ [W], quad. H-11.

[Jean Philippe *Rameau*, French composer (1683–1764).]

H:–:AA:EU:FR:5:1976:[569].

Raphael

/ˈræfʌɪɛl/

A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.

342.15 km diameter, $(-20.04°, 76.69°)$ [W], quad. H-7.

[*Raphael* ← Raffaelo Sanzio, Italian painter (1483–1520).]

H:–:AA:EU:IT:5:1976:[570].

Ravel

/rəˈvɛl/

A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.

77.62 km diameter, $(-11.95°, 38.16°)$ [W], quad. H-6.

[Maurice *Ravel*, French composer (1875–1937).]

H:–:AA:EU:FR:5:1985:[571].

Rembrandt
/ˈrɛmbrant/
A crater in the Debussy (formerly Cyllene) quadrangle of Mercury.
716.12 km diameter, (−32.83°, 272.46°) [W], quad. H-14.
[*Rembrandt* Harmenszoon van Rijn, Dutch painter (1606–1669).]
H:–:AA:EU:DU:5:2009 Feb 27:[572].

Renoir
/ˈrɛnwaː/
(*US* /ˈrɛnwaːɹ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
219.88 km diameter, (−18.29°, 51.89°) [W], quad. H-6.
[Pierre Auguste *Renoir*, French painter (1841–1919).]
H:–:AA:EU:FR:5:1976:[573].

Repin
/ˈrjɛpɪn/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
95.44 km diameter, (−19.11°, 63.34°) [W], quad. H-6.
[*Repin* ← Russ. Илья Ефримович Репин **(Il'ya Yefrimovich Ryepin)** ← Ukrain. Илля Юхимович Рєпін **(Illya Yukhimovich Ryepīn)**, Russian painter (1844–1930).]
H:–:AA:EU:RU:5:1976:[574,575].

Resolution Rupes
/rɛzəˈluːʃən ˈruːpɪz/
A ridge in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
138.74 km diameter, (−63.27°, 50.57°) [W], quad. H-11.
[Eng. *Resolution* (a ship on Cook's second Pacific expedition) + L. *rupes* ('scarp').]
H:–:RU:EU:EN:5:1976:[576].

Riemenschneider
/ˈriːmənʃnʌidə/
(*US* /ˈriːmənʃnʌidəɹ/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
183.96 km diameter, (−53.1°, 99.99°) [W], quad. H-12.
[Tilman *Riemenschneider*, German sculptor (*c.* 1460–1531).]
H:–:AA:EU:GE:5:1979:[577].

Rilke
/ˈrɪlkə/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
81.67 km diameter, (−44.77°, 12.46°) [W], quad. H-11.
[Rainer Maria *Rilke*, German poet (1875–1926).]
H:–:AA:EU:GE:5:1976:[578].

Rimbaud
/ˈræŋbəʊ/
(*US* /ˈræŋboʊ/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
78.23 km diameter, (−63.67°, 148.83°) [W], quad. H-12.
[Arthur *Rimbaud*, French poet (1854–1891).]
H:–:AA:EU:FR:5:1985:[579].

Rodin
/rəʊˈdæŋ/
(*US* /roʊˈdæŋ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
230.65 km diameter, (21.64°, 18.88°) [W], quad. H-6.
[Auguste *Rodin*, French sculptor (1840–1917).]
H:–:AA:EU:FR:5:1976:[580].

Rubens
/ruːbɪnz/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

158.79 km diameter, (60.81°, 78.27°) [W], quad. H-2.

[Peter Paul *Rubens*, Flemish painter (1577–1640).]

H:–:AA:EU:FL:5:1979:[581].

Rublev

/ˈruːbljɔf/

A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.

128.94 km diameter, (−15.1°, 156.99°) [W], quad. H-8.

[*Rublev* ← Russ. Андрей Рублёв **(Andryey Rublyov)**, Russian painter (*c.* 1370–1430).]

H:–:AA:EU:RU:5:1976:[582,583].

Rūdaki

/ˈruːdəkiː/

A crater in the Kuiper (Tricrena) quadrangle of Mercury.

123.54 km diameter, (−4.0°, 51.69°) [W], quad. H-6.

[*Rūdaki* ← Pers. ابو عبدالله جعفر ابن محمد رودکی **[abu abdollah ja‘far ibn mohammad rūdakī]**, Persian poet and founder of classical Persian literature (*c.* 859–940/941).]

H:–:AA:AS:PE:5:1976:[584,585].

Rude

/ruːd/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

68.52 km diameter, (−33.26°, 79.19°) [W], quad. H-11.

[François *Rude*, French sculptor (1784–1855).]

H:–:AA:EU:FR:5:1985:[586].

Rūmī

/ˈruːmiː/

A crater in the Michelangelo (Solitudo Promethei) quadrangle of Mercury.

75.06 km diameter, (−24.14°, 105.19°) [W], quad. H-12.

[*Rūmī* (“Roman”), Mawlānā Jalāl ad-Dīn Mohammad *Rūmī* ← Pers. مولانا جلال الدین محمد رومی **[mowlānā jalāl al-dīn mohammad rūmī]**, (1207–1273), Persian poet and Sufi mystic.]

H:–:AA:AS:PE:5:1985:[587,588].

Rustaveli

/rʊstəˈvɛli/

A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.

200.5 km diameter, (52.55°, 277.41°) [W], quad. H-5.

[*Rustaveli* ← Georg. **(Shota Rustaveli)**, Georgian poet (*c.* 1160–1216).]

H:–:AA:AS:GE:5:2012 Apr 24:[589,590].

S

Sadī
/saːˈdiː/
A crater in the Bach (Australia) quadrangle of Mercury.
66.54 km diameter, (−79.15°, 51.18°) [W], quad. H-15.
[*Sadī ← Pers. سعدی [**sa‘dī**], pen-name of Abu Mohammad Muslih al-Dīn bin Abdollah Shīrāzī ← Pers.
ابو محمد مصلح الدين بن عبدالله شيرازي
Persian poet (*c.* 1194–1283/1292).]
H:–:AA:AS:PE:5:1976:[591,592].

Saikaku
/saɪkaːkuː/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
64.06 km diameter, (71.89°, 178°) [W], quad. H-01.
[Ihara *Saikaku* ← Jap. 井原西鶴 Japanese novelist and poet (1642–1693).]
H:–:AA:AS:JA:5:1979:[593,594].

Sander
/ˈsaːndə/
(*US* /ˈsaːndəɹ/)
A crater in the Raditladi (formerly Liguria) quadrangle of Mercury.
47.24 km diameter, (42.47°, 205.28°) [W], quad. H-4.
[August *Sander*, German photographer (1876–1964).]
H:–:AA:EU:GE:5:2008 Apr 08:[595].

Santa María Rupes
/ˈsæntə məˈriːə ˈruːpɪz/
A scarp in the Kuiper (formerly Tricrena) quadrangle of Mercury.
226.79 km diameter, (5.82°, 19.83°) [W], quad. H-6.
[Sp. *Santa María* (Columbus' flagship on first voyage to America) + L. *rupes* ('scarp').]
H:–:RU:EU:SP:5:1976:[596].

Sarameias regio†
/særəˈmʌɪəs ˈrɛdʒəʊ/
(*US* /- ˈrɛdʒoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Sarameias* ← Skr. **sarameias** ('of the god Hermes') + L. *regio* ('region').]
[597,598].

Sarameya†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Sarameya*, the god Hermes in Graeco–Sanskrit mythology.] [699,600]

Sarmiento
/saːˈmjɛntəʊ/
(*US* /saːɹˈmjɛntoʊ/)
A crater in the Neruda (formerly Solitudo Persephones) quadrangle of Mercury.
95.34 km diameter, (−29.33°, 189.55°) [W], quad. H-13.
[Domingo Faustino *Sarmiento*, Argentine writer (1811–1888).]
H:–:AA:SA:AR:5:1979:[601].

Sayat-Nova
/sʌɪˈjæt ˈnəʊvə/
(*US* /- ˈnəʊvə/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
145.87 km diameter, (−28.11°, 122.56°) [W], quad. H-12.
[Aruthin Sayadian *Sayat-Nova*, Armenian/Georgian song writer (1712–1795).]
H:–:AA:AS:AM:5:1979:[602,603].

Scarlatti
/skaːˈlati/
(*US* /skaːɹˈlati/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
131.99 km diameter, (40.84°, 101.25°) [W], quad. H-3.
[Domenico (1685–1757) and Alessandro *Scarlatti* (1660–1725), Italian composers.]
H:–:AA:EU:IT:5:1979:[604].

Schiaparelli Dorsum
/skɪjapəˈrɛli ˈdɔːsəm/
(*US* /- ˈdɔːɹsəm/)
A ridge in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
373.99 km diameter, (23.2°, 164.09°) [W], quad. H-3.
[Giovanni Virginio *Schiaparelli*, Italian astronomer (1835–1910) + L. *dorsum* ('ridge')]
H:–:DO:EU:IT:5:1976:[605,606].

Schoenberg
/ˈʃəːnbəːg/
(*US* /ˈʃəːnbəːɹg/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
27.61 km diameter, (−16.11°, 135.99°) [W], quad. H-7.
[Arnold *Schoenberg*, Austrian–American composer (1874–1951).]
H:–:AA:EU:AS:5:1976:[607].

Schubert
/ˈʃuːbət/
(*US* /ˈʃuːbəɹt/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
190.71 km diameter, (−43.13°, 54.31°) [W], quad. H-11.
[Franz Peter *Schubert*, Austrian composer (1797–1828).]
H:–:AA:EU:AS:5:1976:[608].

Scopas
/ˈskɔpəs/
(*US* /ˈskapəs/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
83.16 km diameter, (−80.8°, 177.91°) [W], quad. H-15.
[L. *Scopas* ← Gk Σκόπας **(Skopas)**, Greek sculptor and architect (*fl.* fourth century B.C.]
H:–:AA:EU:GK:5:1976:[609,610].

Sei
/sɛɪ /
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
137.11 km diameter, (−64.63°, 88.63°) [W], quad. H-11.
[*Sei* Shonagun ← Jap. 清少納言 Japanese poet and diarist (*c.* 966–1017).]
H:–:AA:AS:JA:5:1976:[611,612].

Serpens†
/ˈsəːpənz/
(*US* /ˈsəːɹpənz/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Serpens* ('snake'), a reference to the intertwined snakes in the caduceus.]
[613,614]

Serpentis regio†
/ˈsəːpəntɪs ˈrɛʤəʊ/
(*US* /ˈsəːɹpəntɪs ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen.) *Serpentis* ← L. *Serpens* ('snake'), a reference to the intertwined snakes in the caduceus + L. *regio* ('region').] [615,616].

Seuss
/sɔɪs/
A crater in the Derain (formerly Pieria) quadrangle of Mercury.

63.5 km diameter, (7.73°, 326.76°) [W], quad. H-10.

['Dr. *Seuss*' (pseud.) ← Theodor Seuss Geisel, American cartoonist and author (1904–1991).]

H:–:AA:NA:AM:5:2012 Apr 24:[617].

Shakespeare

/ˈʃɛɪkspɪə/
(*US* /ˈʃɛɪkspɪəɹ/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

399.06 km diameter, (47.79°, 152.25°) [W], quad. H-3.

[William *Shakespeare*, English dramatist and poet (1564–1616).]

H:–:AA:EU:EN:5:1979:[618].

Shelley

/ˈʃɛli/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.

170.98 km diameter, (−47.6°, 128.22°) [W], quad. H-12.

[Percy Bysshe *Shelley*, English poet (1792–1822).]

H:–:AA:EU:EN:5:1979:[619].

Sher-Gil

/ˈʃɛː ˈɡɪl/
(*US* /ˈʃɛːɹ ˈɡɪl/)

A crater in the Michelangelo (formerly Solitudo Persephones) quadrangle of Mercury.

76.56 km diameter, (−45.25°, 225.25°) [W], quad. H-13.

[Amrita *Sher-Gil* ← Hin. अमृता शेरगिल **(amṛtā śergil)**, Hungarian-born Indian painter (1913–1941).]

H:–:AA:AS:IN:5:2008 Nov 20:[620,621].

Shevchenko

/ʃɛftʃɛnkəʊ/
(*US* /ʃɛftʃɛnkoʊ/)

A crater in the Discovery (formerly Solitudo Hermae Trismegisti quadrangle of Mercury.

143.33 km diameter, (−53.55°, 46.17°) [W], quad. H-11.

[*Shevchenko* ← Ukrain. Тарас Хригорович Шевченко **(Taras Grigorovich Shevchenko)**, Ukrainian poet (1814–1861).]

H:–:AA:EU:UK:5:1976:[622,623].

Sholem Aleichem

/ˈʃəʊləm əˈlɛɪkəm/
(*US* /ˈʃoʊləm -/)

A crater in the Shakespeare (Caduceata) quadrangle of Mercury.

195.57 km diameter, (50.97°, 90.49°) [W], quad. H-03.

[*Sholem Aleichem* ← Yid. שלום־עליכם **[sholem 'aleykhem]**, Russ. & Ukrain. Шолом Алейхем **[sholom aleykhem]**, pen name of Sholem Naumovich Rabinovich, renowned Yiddish author and playwright (1859–1916).]

H:–:AA:AS:JW:5:1979:[624,625].

Sibelius

/sɪˈbɛɪlɪəs/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.

93.58 km diameter, (−49.54°, 145.25°) [W], quad. H-12.

[Jean *Sibelius*, Finnish composer (1865–1957).]

H:–:AA:EU:FI:5:1985:[626].

Simeiz Vallis†

/sɪˈmɛɪz vælɪs/

(Disallowed by the IAU)

A channel in the Kuiper (formerly Tricrena) quadrangle of Mercury.

126.47 km diameter, (−12.81°, 64.83°) [W], quad. H-6.

[*Simeiz* ← Ukrain. Симеїз **(Simeiz)** (radio observatory in the Crimea) + L. *vallis* ('valley').]

H:–:VA:EU:UK:6:1976:[627,628].

Simonides
/sʌɪˈmɔnɪdiːz/
(*US* /sʌɪˈmanɪdiːz/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
87.33 km diameter, (−29.11°, 44.79°) [W], quad. H-11.
[L. *Simonides* ← Gk Σιμωνίδης **(Simōnidēs)**, Greek lyric poet (556–468 B.C.).]
H:–:AA:EU:GR:5:1985:[629,630].

Sinan /sɪˈnaːn/
A crater in the Kuiper (Tricrena) quadrangle of Mercury.
134.37 km diameter, (15.52°, 30.58°) [W], quad. H-6.
[*Sinan* ← Ott. Tu. قوجه معمار سنان آغا *Ḳoca Miʿmār Sinān Āġā* (1489–1588), Turkish architect.]
H:–:AA:AS:TU:5:1976:[631,632].

Sinus Argiphontae†
/ˈsʌɪnəs aːʤɪˈfɔnti/
(*US* /- aːɹʤɪˈfanti/)
Now ***Solitudo Argiphontae***
A dark **albedo feature** on Mercury.
On the W limb in Antoniadi's chart, bounded by Solitudo Aphrodites to the N, Solitudo Criophori to the S and Pentas to the E.
[L. *sinus* ('bay') + L. *Argiphontae* ← Gk Ἀργειφόντης **(Argeiphontes)**, 'Slayer of Argus'.]
H:–:AL:EU:RM:6:1976:[633,634].

Smaragdina†
/smærəgˈdiːnə/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Smaragdina* ← L. *Tabula smaragdina* ('Emerald Table', an alchemical work formerly erroneously attributed to Hermes Trismegisti.] [635,636]

Smetana
/ˈsmɛtənə/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
191.37 km diameter, (−48.42°, 67.97°) [W], quad. H-11.
[*Bedřich Smetana*, Czech composer (1824–1884).]
H:–:AA:EU:CZ:5:1985:[637].

Snorri
/ˈsnɔri/
(*US* /ˈsnari/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
21.27 m diameter, (−9.15°, 83.23°) [W], quad. H-7.
[Sturluson *Snorri*, Icelandic saga writer and poet (1179–1241).]
H:–:AA:EU:IC:5:1976:[638].

Sobkou Planitia
/ˈsɔbkuː pləˈnɪʃə/
A low plain in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
1128.43 km diameter, (39°, 128.02°) [W], quad. H-3.
[*Sobkou* (rare transcr.; more frequent variants are: Sobek, Sobeq, Sebek, Sochet, Suchos) ← Egypt. *sbk* **(Sebek)** (god of crocodiles, protector of the righteous dead in the underworld, in Ptolemaic and Roman Egypt identified with planet Mercury) + L. *planitia* ('plain').]
H:–:PL:AF?:EG?5:1976:[639,640].

Sokos†
/ˈsɔkəs/
(*US* /ˈsakəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Sokos* ← Gk σώκος **(sōkos)**, 'strong', an epithet applied to Hermes.] [641,642]

Solitudo Admetei
/sɔlɪˈtjuːdəʊ ædˈmiːtiːʌɪ/
(*US* /saliˈtjuːdoʊ -/)
Formerly ***Admeti Vallis***
A dark **albedo feature** in the Mercury.
In the NE quadrant of Antoniadi's chart, bounded by Caduceata to the N, Aurora to the E, Solitudo Lycaonis to the S and Pleias to the W. $(55°, 90°)$ [W].
[L. *solitudo* ('desert') + L.* (gen.) *Admeteī* (← L.* *Admeteus*, properly *Admetus*) ← Gk Ἄδμητος (King of Pherae in Thessaly and one of the Argonauts).]
H:–:AL:EU:RM:5:1976:[643,644].

Solitudo Alarum
/sɔlɪˈtjuːdəʊ ˈaːlərəm/
(*US* /saliˈtjuːdoʊ -/)
A darkish **albedo feature** on Mercury.
In Antoniadi's chart bounded by Solitudo Aphrodites to the N, Pentas to the W, Solitudo Criophori to the S and Liguria to the E.
$(-15°, 290°)$ [W].
[L. *solitudo* ('desert') + *alarum* ← L. (gen. pl.) *ālarum* ← L. *āla* ('wing'), in reference to the winged hat and sandals of Mercury.]
H:–:AL:EU:RM:5:1976:[645,646].

Solitudo Aphrodites
/sɔlɪˈtjuːdəʊ æfrəˈdʌɪtiːz/
(*US* /saliˈtjuːdoʊ -/)
A dark **albedo feature** on Mercury.
On the NW limb in Antoniadi's chart, bounded by Apollonia to the N, Solitudo Argiphontae and Pentas to the S and Liguria to the E.
$(25°, 290°)$ [W].
[L. *solitudo* ('desert') + *Aphrodites* ← Gk (gen.) Ἀφροδίτης ← Gk Ἀφροδίτη **(Aphroditē)**, Goddess of Love.]
H:–:AL:EU:RM:5:1976:[647,648].

Solitudo Argiphontae
/sɔlɪˈtjuːdəʊ aːdʒɪˈfɔnti/
(*US* /saliˈtjuːdoʊ aːɹdʒɪˈfanti/)
Renamed ***Sinus Argiphontae***
A dark **albedo feature** on the surface of Mercury.
On the W limb in Antoniadi's chart, bounded by Solitudo Aphrodites to the N, Pentas to the E and Solitudo Criophori to the S.
Diameter km, $(-10°, 335°)$ [E].
[L. *solitudo* ('desert') + L. (gen.) *Argyrophontae* ('Argiphontean') ← L. Argiphontes ← Gk Ἀργειφόντης **(Argeiphontēs)**.]
H:–:AL:EU:RM:5:1976:[649,650].

Solitudo Atlantis
/sɔlɪˈtjuːdəʊ ətˈlæntɪs/
(*US* /saliˈtjuːdoʊ -/)
A dark circular **albedo feature** on Mercury.
In Antoniadi's chart bounded by Ixionis Vallis and Pieria to the N, Hesperis to the W, Solitudo Persephones to the S, and Solitudo Ius and Cyllene to the E.
$(-35°, 210°)$ [W].
[L. *solitudo* ('desert') + L. *Atlantis* (gen.) ← L. *Atlas* ← Ἄτλας **(Atlas)**.]
H:–:AL:EU:RM:5:1976:[651,652].

Solitudo Criophori
/sɔlɪˈtjuːdəʊ kraɪˈɔfərʌɪ/
(*US* /saliˈtjuːdoʊ -/)
A long, very dark, wedge-shaped **albedo feature** on Mercury.
In Antoniadi's chart extending from the W limb and bounded by Solitudo Argiphontae, Pentas and Solitudo Alarum to the N, Hesperis, Pieria and Ixionis Vallis to the S, and Heliocaminus to the E.
Eminescu region $(0°, 230°)$ [W], quad. H-9.
[L. *solitudo* ('desert') + L. (gen.) *Criophorī* ← L. *Criophorus* ← Gk

Κριοφόρος (**Kriophoros**), Bearer of the Ram, one of the epithets of Hermes.]
H:–:AL:EU:RM:5:1976:[653,654].

Solitudo Dionysi†

/sɔlɪˈtjuːdəʊ daɪəˈnaɪsʌɪ/
(*US* /saliˈtjuːdoʊ -/)
A dark **albedo feature** on the surface of Mercury.
In Antoniadi's chart bounded by Caduceata to the N, Liguria to the W, Neptuni Vallis to the S, and Admeti Vallis and Aurora to the E.
[L. *solitudo* ('desert') + *Dionysi* ← L. (gen.) *Dionȳsī* ← L. *Dionȳsus* ← Gk Διόνυσος (**Dionysos**).] [655,656].

Solitudo Helii

/sɔlɪˈtjuːdəʊ ˈhiːlɪʌɪ/
(*US* /saliˈtjuːdoʊ -/)
A bright **albedo feature** on Mercury.
In Antoniadi's chart bounded by Phaethontius to the N, Solitudo Maiae to the W, Solitudo Panos to the S, and Neptuni Vallis and Solitudo Iovis to the E.
$(-10°, 180°)$ [W].
[L. *solitudo* ('desert') + L. (gen.) *Heliī* ← L. *Helius* ← Gk Ἥλιος, 'Sun'.]
H:–:AL:EU:RM:5:1976:[657,658].

Solitudo Hermae Trismegisti

/sɔlɪˈtjuːdəʊ ˈhəːmɪː trɪzmɪˈʤistʌɪ/
(*US* /saliˈtjuːdoʊ -/)
An extensive dark **albedo feature** on Mercury.
On the SE limb of the Antoniadi map, bounded by Solitudo Lycaonis, Horarum Vallis, Solitudo Iovis and Cyllene to the W, and Solitudo Promethei to the S.
H-11, Discovery region $(-45°, 45°)$ [W].
[L. *solitudo* ('desert') + L. (gen.) *Hermae Trismegistī* ← L. *Hermēs Trismegistus* ← Gk Ἑρμῆς ὁ Τρισμέγιστος (**Hermēs ho trismegistos**), 'thrice-greatest Hermes'.]
H:–:AL:EU:RM:5:1976:[659,660].

Solitudo Horarum

/sɔlɪˈtjuːdəʊ hɔˈrɛːrəm/
(*US* /saliˈtjuːdoʊ -/)
Formerly ***Horarum Vallis***
A long dark **albedo feature** on Mercury.
In Antoniadi's chart bounded by Pleias to the N and W, Solitudo Iovis to the S and Solitudo Lacaonis to the E.
$(25°, 115°)$ [W].
[L. *solitudo* ('desert') + L. (gen. pl.) *horārum* ← L. *horae* ('hours').]
H:–:AL:EU:RM:5:1976:[661,662].

Solitudo Iovis

/sɔlɪˈtjuːdəʊ ˈʤəʊvɪs/
(*US* /saliˈtjuːdoʊ -/)
A dark circular **albedo feature** on Mercury.
In Antoniadi's chart bounded by Pleias to the N, Helii Promontorium and Solitudo Panos to the W, and Solitudo Hermae Trismegisti to the S and E.
$(0°, 360°)$ [W].
[L. *solitudo* ('desert') + L. (gen.) *Iovis* ← L. *Iūppiter* ('Jupiter').]
H:–:AL:EU:RM:5:1976:[663,664].

Solitudo Ius†

/sɔlɪˈtjuːdəʊ ˈʌɪəs/
(*US* /saliˈtjuːdoʊ -/)
A darkish **albedo feature** on the surface of Mercury.
In Antoniadi's chart bounded by Cyllene to the N, Solitudo Atlantis to the W Solitudo Persephones to the S and Solitudo Panos to the W.
[L. *solitudo* ('desert') + *Ius* ← L. (gen.) *Iūs* ← L. *Īō* ← Gk Ἰώ (**Iō**), a girl beloved by Jupiter and changed into a cow to avoid the wrath of Juno.]
[665,666].

Solitudo Jovis*

/sɔlɪˈtjuːdəʊ ˈʤəʊvɪs/
(*US* /saliˈtjuːdəʊˈʤoʊvɪs/)

Changed to ***Solitudo Iovis***
[L. *solitudo* + L. (gen.) *Jovis* = *Iovis*.]
[667,668]

Solitudo Lycaonis
/sɔlɪ'tjuːdəʊ lɪ'kɛɪənɪs/
(*US* /sali'tjuːdoʊ -/)
A dark **albedo feature** on Mercury.
On the E limb in Antoniadi's chart, bounded by Aurora and Admeti Vallis to the N, Pleias and Horarum Vallis, and Solitudo Hermae Trismegisti to the S.
H-7, Beethoven region (0°, 107°) [W].
[L. *solitudo* ('desert') + L. (gen.) *Lycaonis* ← L. *Lycaon* ← Gk Λυκαῖον **(Lykaion)**, Mount Lycaeus in Arcadia.]
H:–:AL:EU:RM:5:1976:[669,670].

Solitudo Lyrae†
/sɔlɪ'tjuːdəʊ 'lʌiri/
(*US* /sali'tjuːdoʊ -/)
A small darkish **albedo feature** on the surface of Mercury.
In Antoniadi's chart bounded by Neptuni Vallis to the N, Heliocaminus to the W, Helii Promontorium and Solitudo Iovis to the S, and Pleias to the E.
[L. *solitudo* ('desert') + L. (gen.) *lyrae* ← L: *lyra* ← Gk λύρα 'lyre', an instrument invented by Hermes.] [671,672].

Solitudo Maiae
/sɔlɪ'tjuːdəʊ 'mʌii/
(*US* /sali'tjuːdoʊ -/)
A small dark circular **albedo feature** on Mercury.
In Antoniadi's chart bounded by Phaethontius to the N, Cyllene to the W, Solitudo Panos to the S and E, and Helii Promontorium to the E.
(−15°, 155°) [W].
[L. *solitudo* ('desert') + L. (gen.) *Maiae* ← L. *Maia* ← Gk Μαῖα, mother of Hermes and one of the Pleiades.]
H:–:AL:EU:RM:5:1976:[673,674].

Solitudo Martis
/sɔlɪ'tjuːdəʊ 'maːtis/
(*US* /sali'tjuːdoʊ 'maːɹtis/)
A small darkish circular **albedo feature** on Mercury.
In Antoniadi's chart surrounded by Solitudo Hermae Trismegisti.
(−35°, 100°) [W].
[L. *solitudo* ('desert') + L. (gen.) *Martis* ← L. *Mars* ← Gk Ἄρης **(Arēs)**, 'Mars', Graeco–Roman god of war.]
H:–:AL:EU:RM:5:1976:[675,676].

Solitudo Neptuni
/sɔlɪ'tjuːdəʊ nɛp'tjuːnʌɪ/
(*US* /sali'tjuːdoʊ -/)
Formerly ***Neptuni Vallis***
A long dark **albedo feature** on Mercury.
In Antoniadi's chart bounded by Admeti Vallis to the N, Heliocaminus and Argyritis to the W, Solitudo Lyrae to the S and Pierias to the E.
(30°, 150°) [W].
[L. *solitudo* ('desert') + *Neptuni* ← L. (gen.) *Neptūnī* ← *Neptūnus* ← Gk Ποσειδῶν **(Poseidōn)**, Graeco–Roman god of the sea).]
H:–:AL:EU:RM:5:1976:[677,678].

Solitudo Panos†
/sɔlɪ'tjuːdəʊ 'pɛɪnɔs/
(*US* /sali'tjuːdoʊ -/)
A darkish **albedo feature** on the surface of Mercury.
In Antoniadi's map bounded by Helii Promontorium to the N, Solitudo Maiae, Cyllene to the W and S, and Solitudo Hermae Trismegisti to the E.
[L. *solitudo* ('desert') + L. (gen.) *Panos* ← L. *Pan* ← Gk Παν **(Pan)**, Greek god of shepherds.]
H:–:AL:EU:RM:5:1976:[679,680].

Solitudo Persephones
/sɔlɪ'tjuːdəʊ pəː'sɛfəniːz/
(*US* /sali'tjuːdoʊ pəːɹ'sɛfəniːz/)

A dark **albedo feature** on the surface of Mercury.
On the SW limb in Antoniadi's chart, bounded by Hesperis, Solitudo Altantis and Solitudo Ius to the N, and Cyllene and Solitudo Promethei to the E.
Unimaged H-13 region (−41°, 225°) [W].
[L. *solitudo* ('desert') + *Persephones* ← L. (gen.) *Persephonēs* ← L. *Persephonē* ← Gk Περσεφόνη) **(Persephonē)**, Queen of the Underworld and daughter of Demeter.]
H:–:AL:EU:RM:5:1976:[681,682].

Solitudo Phoenicis

/sɔlɪˈtjuːdəʊ fiˈnʌɪsɪs/
(*US* /saliˈtjuːdoʊ -/)
A round darkish **albedo feature** on the surface of Mercury.
On the equator and just W of the central meridian in Antoniadi's chart, bounded by Helicaminus and Solitudo Criophori to the N, Ixionis Vallis to the W, Phaethontius to the S and Neptuni Vallis to the E.
(25°, 225°) [W].
[L. *solitudo* ('desert') + *Phoenicis* ← L. (gen.) *Phoenīcis* ← L. *Phoenix* ← Gk Φοινιξ **(Phoinix)**, a sacred firebird in Greek mythology.]
H:–:AL:EU:RM:5:1976:[683,684].

Solitudo Promethei

/sɔlɪˈtjuːdəʊ prəˈmiːθiːʌɪ/
(*US* /saliˈtjuːdoʊ -/)
A dark **albedo feature** on Mercury.
On the SE limb in Antoniadi's chart, bounded by Solitudo Persephones and Cyllene to the E and Solitudo Hermae Trismegisti to the N
H-6, Michelangelo region (−45°, 142.5°) [W].
[L. *solitudo* ('desert') + *Promethei* ← L. (gen.) *Promētheī* ← L. *Promētheus* ← Gk Προμηθέυς) **(Promētheus)**, a Titan who stole fire from Zeus and gave it to man.]
H:–:AL:EU:RM:5:1976:[685,686].

Somnii regio†

/ˈsɔmnɪʌɪ ˈrɛʤəʊ/
(*US* /ˈsamnɪʌɪ ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Somnii* ← L. *Somniī* (gen.) ← L. *Somnium* ('dream') + L. *regio* ('region').] [687,688]

Somnus†

/ˈsɔmnəs/
(*US* /ˈsamnəs/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. *Somnus*, the Roman personification of sleep.] [689,690]

Sophocles

/ˈsɔfəkliːz/
(*US* /ˈsafəkliːz/)
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
142.11 km diameter, (−7.02°, 145.92°) [W], quad. H-8.
[*Sophocles* ← Gk Σοφοκλῆς **(Sophoklēs)**, Greek dramatist (*c.* 496–406 B.C.).]
H:–:AA:EU:GR:5:1976:[691,692].

Sor Juana

/sɔː ˈxwana/
(*US* /sɔːɹ ˈxwana/)
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
102.56 km diameter, (50.62°, 25.57°) [W], quad. H-2.
[*Sor Juana* Inés de la Cruz (1651–1695), Mexican poetess, dramatist and religious (1651–1695).]
H:–:AA:NA:ME:5:1979:[693,694].

Sōseki
/səʊsɛkiː/
(*US* /soʊsɛkiː/)
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
91.75 km diameter, (39.32°, 38.71°) [W], quad. H-2.
[Natsume *Sōseki* ← Jap. 夏目漱石; pen name of Natssume Kinnosuke ← Jap. 夏目金之助 Japanese novelist and literary figure (1867–1916).]
H:–:AA:AS:JA:5:1985:[695,696].

Sōtatsu
/səʊtatsʊ/
(*US* /soʊtatsʊ/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
156.5 km diameter, (−48.71°, 18.19°) [W], quad. H-11.
[Tawaraya *Sōtatsu* ← Jap. 俵屋宗達 Japanese artist and calligrapher (1600–1643).]
H:–:AA:AS:JA:5:1976:[697,698].

Sousa
/ˈsuːsə, ˈsuːzə/
A crater in the Hokusai (formerly Apollonia) quadrangle of Mercury.
120.7 km diameter, (46.75°, 358.59°) [W], quad. H-5.
[John Philip *Sousa*, American bandmaster and composer (1845–1932).]
H:–:AA:NA:AM:5:2012 Apr 24:[699].

Spitteler
/ˈʃpɪtələ/
(*US* /ˈʃpɪtələɹ/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
66.7 km diameter, (−69.18°, 60.24°) [W], quad. H-15.
[Carl *Spitteler* (1845–1924), Swiss poet (1845–1924).]
H:–:AA:EU:SZ:5:1976:[700].

Steichen
/ˈʃtʌɪxən/
A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
196.17 km diameter, (−12.82°, 282.87°) [W], quad. H-9.
[Edward *Steichen*, Luxembourg-born American photographer and painter (1879–1973).]
H:–:AA:NA:AM:5:2010 Mar 03:[701].

Stevenson
/ˈstiːvənsən/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
134.07 km diameter, (1.96°, 143.75°) [W], quad. H-7.
[Robert Louis *Stevenson*, Scottish author (1850–1894).]
H:–:AA:EU:SC:5:2012 Apr 24:[702].

Stieglitz
/ˈstiːglɪts/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
100 km diameter, (73°, 294.06°) [W], quad. H-1.
[Alfred *Stieglitz*, American photographer (1864–1946).]
H:–:AA:NA:US:5:2012 Feb 27:[703].

Stravinsky
/strəˈvɪnski/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
129.07 km diameter, (51.97°, 78.91°) [W], quad. H-2.
[*Stravinsky* ← Russ. Игорь Фёдорович Стравинский **(Igor’ Fyodorovich Stravinskiy)**, Russian-born American composer (1882–1971).]
H:–:AA:EU:RU:5:1979:[704,705].

Strindberg
/ˈstrɪndbəːg/
(*US* /ˈstrɪndbəːɹg/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
189.14 km diameter, (53.21°, 136.56°) [W], quad. H-3.
[August *Strindberg*, Swedish playwright and novelist (1849–1912).]
H:–:AA:EU:SW:5:1979:[706].

Suisei Planitia

/suːɪˈʃɛɪ pləˈnɪʃə/
A low plain in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
568.53 km diameter (60.88°, 147.81°) [W], quad H-3.
[*Suisei* ← Jap. 水星 (‘Mercury’) + L. *planitia* (‘plain’).]
H:–:PL:AS:JA:5:1976:[707,708].

Sullivan

/ˈsʌlivən/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
153.23 km diameter, (−16.01°, 86.96°) [W], quad. H-7.
[Louis *Sullivan*, American architect (1856–1924).]
H:–:AA:NA:AM:5:1976:[709].

Sūr Dās

/sʊə ˈdaːs/
(*US* /suːɹ ˈdaːs/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
131.32 km diameter, (−46.86°, 93.71°) [W], quad. H-12.
[*Sūr Dās* ← Hin. सूरदास (**sūrdās**), Indian poet (1483–1563).]
H:–:AA:AS:IN:5:1979:[710,711].

Surikov

/ˈsuːrɪkɔf/
(*US* /ˈsuːrɪkaf/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
108.68 km diameter, (−37.08°, 124.93°) [W], quad. H-12.
[*Surikov* ← Russ. Василий Иванович Суриков (**Vasiliy Ivanovich Surikov**), Russian painter (1848–1916).]
H:–:AA:EU:RU:5:1979:[712,713].

Sveinsdóttir

/ˈsvɛɪnzdɔtɪə/
(*US* /ˈsvɛɪnzdotɪəɹ/)
A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.
212.8 km diameter, (−2.81°, 259.71°) [W], quad. H-9.
[Júliana *Sveinsdóttir*, Icelandic painter (1889–1966).]
H:–:AA:EU:IC:5:2008 Apr 08:[714,715].

T

Takanobu
/tækanəʊbuː/
(*US* /tækanoʊbuː/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
72.28 km diameter, (30.65°, 108.62°) [W], quad. H-3.
[Fujiwara no *Takanobu* ← Jap. 藤原隆信 Japanese portrait artist (1142–1205).]
H:–:AA:AS:JA:5:1985:[716,717].

Takayoshi
/tækəjəʊʃɪ/
(*US* /tækəjoʊʃɪ/)
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
135.86 km diameter, (−37.24°, 163.79°) [W], quad. H-12.
[Fujiwara no *Takayoshi* ← Jap. 藤原隆能 Japanese artist, disputed painter of the *genji monogatari emaki* (twelfth century).]
H:–:AA:AS:JA:5:1979:[718,719].

Talaria†
/təˈlɛːrɪə/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (pl.) *Talaria* ← L. *talaris* (‘winged sandals of Mercury’).] [720,721]

Talarium regio†
/təˈlɛːrɪəm ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[L. (gen. pl.) *Talarium* ← L. *talaria* (‘winged sandals of Mercury’) + L. *regio* (‘region’).] [722,723].

Tansen
/ˈtaːnsən/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
27.09 km diameter, (4.13°, 71.64°) [W], quad. H-6.
[*Miyan* **Tansen* ← Hin. तानसेन **(tānsen)**, also *Ramtanu Pandey*, Hindu composer, one of the *Nauratan* (‘nine jewels’) of the Mughal Emperor Akbar (1493 or 1506–1586 or 1589).]
H:–:AA:AS:IN:5:1976:[724,725].

Testudinis regio†
/tɛsˈtjuːdɪnɪs ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Testudinis* ← L. *testūdinis* (gen.) ← L. *testūdo* (‘tortoise’, reference to the tortoise used by Hermes to make the lyre) + L. *regio* (‘region’).] [726,727].

Testudo†
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Testudo* ← L. *testūdo* (‘tortoise’, reference to the tortoise used by Hermes to make the lyre).] [728,729]

Thākur
/ˈtaːkʊə/
(*US* /ˈtaːkuːɹ/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
111.05 km diameter, (−2.98°, 64.41°) [W], quad. H-6.
[Rabindranath (Robi) *Thākur* (also known as Gurudeb), pen name of Rabindranath Tagore, Bengalese poet and novelist (1861–1941).]
H:–:AA:AS:IN:5:1976:[730,731].

Theophanes
/θiːˈɔfəniːz/
(*US* /θiːˈafəniːz/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
46.39 km diameter, (−5.07°, 142.68°) [W], quad. H-7.
[*Theophanes* ← Gk Θεοφάνης **(Theophanēs)**, Byzantine painter (*c.* 1330–1405).]
H:–:AA:EU:BZ:5:1976:[732,733].

Thoreau
/ˈθɔrəʊ/
(*US* /ˈθɔroʊ/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
71.71 km diameter, (5.95°, 132.56°) [W], quad. H-7.
[Henry David *Thoreau*, American poet and philosopher (1817–1862).]
H:–:AA:NA:AM:5:1985:[734].

Thoth†
/θəʊθ/
(*US* /θoʊθ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Thoth* ← Gk Θωϑ ← Egypt. *ḏḥwty*, an Egyptian god, among whose rôles was to sit in judgement of the dead; sycretized by the Greeks as Hermes.][735,736].

Tintoretto
/tɪntəˈrɛtəʊ/
(*US* /tɪntəˈrɛtoʊ/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
94.21 km diameter, (−48.08°, 22.95°) [W], quad. H-11.
[Tiziano Vecelio *Tintoretto*, Italian painter (*c.* 1488/1490–1576).]
H:–:AA:EU:IT:5:1976:[737].

Tir Planitia
/ˈtɪə pləˈnɪʃə/
(*US* /tɪəɹ -/)
A low plain in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
753.63 km diameter (−1.04°, 176.69°) [W], quad. H-8.
[*Tir* ← Per. تیر (‘Mercury’) + L. *planitia* (‘plain’).]
H:–:PL:EU:NS:5:1976:[738,739].

Titian
/ˈtɪʃən/
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
109.15 km diameter, (−3.66°, 42.56°) [W], quad. H-6.
[*Titian* ← Tiziano Vecellio, Italian painter (*c.* 1488/1490–1576).]
H:–:AA:EU:IT:5:1976:[740].

Tolkien
/ˈtɔlkiːn/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
50 km diameter, (88.8°, 210.7°) [W], quad. H-1.
[John Ronald Reuel *Tolkien*, English writer, poet and philologist (1892–1973).]
H:–:AA:EU:EN:5:2012 Aug 6:[826,827].

Tolstoj
/ˈtɔlstɔɪ, təlˈstɔɪ/
(*US* /təlˈstɔɪ/)
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
355.55 km diameter, (−16.24°, 164.66°) [W], quad. H-8.
[*Tolstoj* ← Russ. Лев Николаевич Толстой **(Lyev Nikolayevich Tolstoy)**, Russian novelist (1828–1910).]
H:–:AA:EU:RU:5:1976:[741,742].

To Ngoc Van
/tɔ ŋgɔk ˈvæn/
(*US* /- ŋgak -/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
71.08 km diameter, (52.5°, 111.98°) [W], quad. H-3.
[*To Ngoc Van*, Vietnamese painter (1906–1954).]
H:–:AA:AS:VT:5:2009 Jul 09:[743,744].

Tricrena
/trɪˈkriːnə/
An albedo region on Mercury.
H-6, Kuiper region (0°, 36°) [W].
[*Tricrena* ← Gk Τρίκρηνα **(Trikrēna)**, a mountain in Arcadia.]
H:–:AL:EU:RM:5:1976:[745,746].

Trismegistos†
/trɪsˈmɛgɪstəs/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Trismegistos* ← Gk Ἑρμῆς ὁ Τρισμέγιστος **(Hermēs ho Trismegistos)**, the supposed author of the *Corpus hermeticum*.] [747,748]

Trite†
/ˈtrʌɪti/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Trite* ← L. *tritē* ← Gk τρίτη **(tritē)**, ‘third string’, (1) the third string on the lyre, (2) a note in the ancient Greek musical scale.] [749,750]

Trite diezeugmenon†
/- dʌɪəzjuːgmɪnən/
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Trite* ← L. *tritē* ← Gk τρίτη **(tritē)**, ‘third string’, (1) the third string on the lyre, (2) a note in the ancient Greek musical scale + *diezeugmenon* ← Gk διεζευγμένον **(diezeugmenon)**, ‘disjunct’; a note in the ancient Greek musical scale.] [751,752]

Trite hyperbolaeon†
/- hʌɪpəbəˈliːən/
(*US* /- hʌɪpəɹbəˈliːən/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Trite* ← L. *tritē* ← Gk τρίτη **(tritē)**, ‘third string’, (1) the third string on the lyre, (2) a note in the ancient Greek musical scale + *hyperbolaeon* ← Gk ὑπερβολαιον **(hyperbolaion)**, ‘outermost’; a note in the ancient Greek musical scale.] [753,754]

Trites regio†
/ˈtraɪtiːz ˈrɛʤəʊ/
(*US* /- ˈrɛʤoʊ/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Trites* ← L. (gen.) *tritēs* ← *tritē* ← Gk τρίτη **(tritē)**, ‘third string’, (1) the third string on the lyre, (2) a note in the ancient Greek musical scale + L. *regio* (‘region’).] [755,756].

Tryggvadóttir
/ˈtrɪgvədɔtɪə/
(*US* /ˈtrɪgvədatɹ/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
31 km diameter, (89.2°, 166.5°) [W], quad. H-1.
[Nína (Jónína) *Tryggvadóttir*, Icelandic artist (1913–1968).]
H:–:AA:EU:IC:5:2012 Aug 6:[828,829].

Ts’ai Wen-Chi
/ˈtsaiː wenˈtʃiː/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
123.8 km diameter, (23.41°, 22.96°) [W], quad. H-2.
[*Tsai Wen-Chi* ← simpl. Chin. (蔡文姬 ← trad. Chin. 蔡琰 [**Ts’ai**[4] **Wen**[2]**-chi**[1]

(W-G); **Cài Wénjī** (pin.)], Han Dynasty composer (*b.* A.D. 177).]
H:–:AA:AS:CH:5:1976:[757,758].

Ts'ao Chan

/ˈtsaʊ ˈtʃæn/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
109.97 km diameter, (−13.33°, 142.19°) [W], quad. H-7.
[*Ts'ao Chan* ← simpl. Chin. 曹霑 ← trad. Chin. 曹霑 [**Ts'ao² Chan¹** (W-G); **Cáo Zhān** (pin.)], Chinese writer (*b.* 1715 or 1724–*d.* 1763 or 1764), usu. known as *Cao Xueqin* ← simpl. Chin. 曹雪芹 ← trad. Chin. 曹雪芹. [**Ts'ao² Hsueh³-ch'in²** (W-G); **Cáo Xuěqín** (pin.)].]
H:–:AA:AS:CH:5:1976:[759,760].

Tsurayuki

/tsuːrajuːkiː/
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
83.07 km diameter, (−63.01°, 20.26°) [W], quad. H-11.
[Ki no *Tsurayuki* ← Jap. 紀貫之 Japanese writer (*c.* 945).]
H:–:AA:AS:JA:5:1976:[761,762].

Tung Yüan

/tʊŋ juːˈaːn/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
60.46 km diameter, (75.22°, 63.49°) [W], quad. H-1.
[*Tung Yüan* ← simpl. Chin. 董源 ← trad. Chin. 董源 [**Tung³ Yüan²** (W-G); **Dǒng Yuán** (pin.)] Chinese painter (*c.* 934–*c.* 962).]
H:–:AA:AS:CH:5:1979:[763,764].

Turgenev

/tuːˈgjɛnjef/
(*US* /tuːˈɹgjɛnjef/)
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
136.37 km diameter, (65.63°, 136.36°) [W], quad. H-1.
[*Turgenev* ← Иван Сергеевич Тургенев **(Ivan Syergyeyevich Turgyenyev)**, Russian writer (1818–1883).]
H:–:AA:EU:RU:5:1979:[765,766].

Turms†

/tʊəms/
(*US* /tʊɹms/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[Etrusc. *Turms*, the Etruscan equivalent to Hermes.] [767,768]

Tyagaraja

/tjaːgəˈraːʤə/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
96.88 km diameter, (3.9°, 148.75°) [W], quad. H-8.
[*Tyagaraja* → Tel. **(Tyāgarāja)**, colloq. name of Kakarla Tyagabrahmam, a Telugu Brahmin Carnatic composer (1767–1847).]
H:–:AA:AS:IN:5:1976:[769,770].

U

Unkei

/ʊŋkɛɪ/

A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

121.47 km diameter, (−31.81°, 62.54°) [W], quad. H-11.

[*Unkei* ← Jap. 運慶 Japanese sculptor (*c.* 1148–1223).]

H:–:AA:AS:JA:5:1976:[771,772].

Ustad Isa

/uːˈstaːd ɪˈsaː/

A crater in the Michelangelo (Solitudo Promethei) quadrangle of Mercury.

137.78 km diameter, (−31.97°, 166.09°) [W], quad. H-12.

[*Ustad *Isa* ← Pers. استاد عیسی [**ostād ‘isa**], “Master Isa (Jesus)”, Turkish/Persian architect (17th century), thought to be the chief architect of the Taj Mahal.]

H:–:AA:AS:TU:5:1979:[773,774].

V

Vālmiki

/vaːlˈmiːkɪ/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.

209.58 km diameter, $(-23.63°, 141.4°)$ [W], quad. H-12.

[**Vālmiki* ← Skr. **वाल्मीकि (vālmīki)**, Sanskrit poet (first century B.C.).]

H:–:AA:AS:SA:5:1976:[775,776].

Van Dijck

/væn ˈdiːk/

A crater in the Borealis (formerly Borea) quadrangle of Mercury.

101.23 km diameter, $(75.48°, 166.89°)$ [W], quad. H-1.

[Anthonis *[v]an Dijck* (Anthony Vandyke and other variants), Flemish painter (1599–1641).]

H:–:AA:EU:FL:5:1979:[777].

Van Eyck

/væn ˈiːk/

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

271.18 km diameter, $(43.13°, 159.37°)$ [W], quad. H-3.

[Jan *Van Eyck*, Dutch painter (*c.* 1395–1441).]

H:–:AA:EU:FL:5:1979:[778].

van Gogh

/væn ˈɡɔx/

(*US* /væn ˈɡoʊ/)

A crater in the Bach (formerly Australia) quadrangle of Mercury.

99.4 km diameter, $(-76.84°, 138.41°)$ [W], quad. H-15.

[Vincent Willem *van Gogh*, Dutch painter (1853–1890).]

H:–:AA:EU:DU:5:1976:[779].

Vayu†

/vʌɪʊ/

A spurious linear feature on Mercury mapped and named by Percival Lowell.

[*Vayu* ← Skr. **वायु (vāyu)**.] [780,781]

Velázquez

/vɛˈlaskɛs/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

127.97 km diameter, $(37.7°, 55.41°)$ [W], quad. H-2.

[Diego *Velázquez*, Spanish painter (1599–1660).]

H:–:AA:EU:SP:5:1979:[782].

Verdi

/ˈvɛːdi/

(*US* /ˈvɛːɹdi/)

A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.

144.55 km diameter, $(64.25°, 169.62°)$ [W], quad. H-3.

[Giuseppe *Verdi*, Italian composer (1813–1901).]

H:–:AA:EU:IT:5:1979:[783].

Victoria Rupes

/vɪkˈtɔːrɪə ˈruːpɪz/

A scarp in the Victoria (formerly Aurora) quadrangle of Mercury.

346.95 km diameter, $(52.71°, 34.16°)$ [W], quad. H-2.

[Sp. *Victoria* (Magellan and del Cano's ship on first circumnavigation) + L. *rupes* ('scarp').]

H:–:RU:EU:SP:5:1976:[784].

Vincente

/vɪnˈsɛntɛɪ/

A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.

108.41 km diameter, (−56.73°, 142.86°) [W], quad. H-12.

[Gil *Vincente*, Portuguese dramatist (*c.* 1465–1537).]

H:–:AA:EU:PG:5:1979:[785,786].

Vivaldi

/vɪˈvældiː/

A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.

213.82 km diameter, (13.77°, 85.89°) [W], quad. H-7.

[Antonio *Vivaldi*, Italian composer (1678–1741).]

H:–:AA:EU:IT:5:1976:[787].

Vlaminck

/vləˈmæŋk/

A crater in the Victoria (formerly Aurora) quadrant of Mercury.

81.63 km diameter, (28.51°, 13.44°) [W], quad. H-2.

[Maurice de *Vlaminck*, French painter (1876–1958).]

H:–:AA:EU:FR:5:1985:[788].

Vostok Rupes

/ˈvɔstɔk ˈruːpɪz/

(*US* /ˈvastɔk -/)

A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.

124.33 km diameter, (−37.82°, 19.52°) [W], quad. H-11.

[*Vostok* ← Russ. *Восток* (***Vostok***) (Bellinghausen's ship for Antarctic exploration) + L. *rupes* ('scarp').]

H:–:RU:EU:RU:5:1976:[789,790].

Vyāsa

/vɪˈjaːsə/

A crater in the Victoria (formerly Aurora) quadrangle of Mercury.

296.8 km diameter, (49.8°, 84.62°) [W], quad. H-02.

[*Vyāsa* ← Skr. व्यास **(vyāsa)**, Vedic Sanskrit poet (*fl.* 1500 B.C.)]

H:–:AA:AS:IN:5:1979:[791,792].

W

Wagner
/ˈvaːgnə/
(*US* /ˈvaːgnəɹ/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
134.11 km diameter, (−68.2°, 114.93°) [W], quad. H-15.
[Richard *Wagner*, German composer (1813–1883).]
H:–:AA:EU:GE:5:1976:[793].

Wang Meng
/waːŋ ˈmɛŋ/
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
165.12 km diameter, (8.64°, 104.06°) [W], quad. H-7.
[*Wang Meng* ← simpl. Chin. 王蒙 ← trad. Chin. 王蒙 [**Wang**² **Meng**² (W-G); **Wáng Méng** (pin.)], Chinese painter (*c.* 1308–1385).]
H:–:AA:AS:CH:5:1976:[794,795].

Warhol
/ˈwɔːhəʊl/
(*US* /ˈwɔːɹhoʊl/)
A crater in the Kuiper (formerly Tricrena) quadrangle of Mercury.
91.35 km diameter, (−2.54°, 6.08°) [W], quad. H-6.
[Andy *Warhol*, American pop artist and film director (1928–1987).]
H:–:AA:NA:AM:5:2012 Apr 24:[796].

Waters
/ˈwɔːtəz/
(*US* /ˈwɔːtəɹz/)
A crater in the Beethoven (formerly Solitudo Lycaonis) quadrangle of Mercury.
15.01 km diameter, (−8.96°, 105.37°) [W], quad. H-7.
[McKinley Morganfield (‘Muddy *Waters*’), American blues musician (1913–1983).]
H:–:AA:NA:US:5:2012 Dec 19:[850,851].

Wergeland
/ˈvɛːgələnd/
(*US* /ˈvɛːɹgələnd/)
A crater in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
42.23 km diameter, (−37.87°, 56.27°) [W], quad. H-11.
[Henrik Arnold *Wergeland*, Norwegian poet (1808–1845).]
H:–:AA:EU:NO:5:1976:[797].

Whitman
/ˈwɪtmən/
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
64.39 km diameter, (41.39°, 111.8°) [W], quad. H-3.
[Walter *Whitman*, American poet (1819–1892).]
H:–:AA:NA:AM:5:1985:[798].

Wren
/rɛn/
A crater in the Victoria (formerly Aurora) quadrangle of Mercury.
204.28 km diameter, (24.76°, 36.06°) [W], quad. H-2.
[Christopher *Wren*, English architect (1632–1723).]
H:–:AA:EU:EN:5:1979:[799].

X

Xiao Zhao

/ʃaʊ ˈʤaʊ/

A crater in the Eminescu (formerly Solitudo Criophori) quadrangle of Mercury.

24.13 km diameter, $(10.57°, 236.09°)$ [W], quad. H-9.

[*Xiao Zhao* ← simpl. Chin. 萧照 ← trad. Chin. 蕭照 [**Hsiao**[1] **Chao**[4] (W-G); **Xiāo Zhào** (pin.)], Chinese painter (*fl.* 1131–1162).]

H:–:AA:AS:CH:5:2008 Apr 08:[800,801].

Y

Yakovlev†
/jæˈkɔvlɛf/
(*US* /jæˈkavlɛf/)
Renamed ***Barma***
A crater in the Michelangelo (formerly Solitudo Promethei) quadrangle of Mercury.
H:–:AA:EU:RU:6:1979:[802,803].

Yeats
/jɛɪts/
A crater in the Kuiper (formerly Tricrena) quadrant of Mercury.
92.28 km diameter, (9.48°, 35.01°) [W], quad. H-6.
[William Butler *Yeats*, Irish poet and dramatist (1865–1939).]
H:–:AA:EU:IR:5:1976:[804].

Yoshikawa
/jɔʃɪkaːwə/
A crater in the Borealis (formerly Borea) quadrangle of Mercury.
30 km diameter, (81.2°, 254°) [W], quad. H-1.
[Hidetsugu (Eiji) *Yoshikawa* ← Jap. 吉川英治 Japanese novelist (1892–1962).]
H:–:AA:AS:JA:5:2012 Aug 6:[832,833].

Yun Sŏn-Do
/juːn sɔn ˈdəʊ/
(*US* /- san ˈdoʊ/)
A crater in the Bach (formerly Australia) quadrangle of Mercury.
75.62 km diameter, (−73.5°, 110.05°) [W], quad. H-15.
[*Yun Sŏn-Do* ← hangul 윤선도 ← hanja 尹善道 [**Yun Sŏn-do** (M-R); **Yun Seon-do** (rev.)], Korean poet (1587–1671).]
H:–:AA:AS:KR:5:1976:[805,806].

Z

Zarya Rupes

/ˈzaːjə ˈruːpɪz/
(*US* /ˈzaːɹjə -/)
A scarp in the Discovery (formerly Solitudo Hermae Trismegisti) quadrangle of Mercury.
120.88 km diameter, (−42.59°, 20.76°) [W], quad. H-11.
[*Zarya* ← Russ. *Заря* (***Zarya***), USSR schooner that investigated Earth's magnetic field + L. *rupes* ('scarp').]
H:–:RU:EU:SO:5:1976:[807,808].

Zeami

/zɛɪaːmɪ/
A crater in the Tolstoj (formerly Phaethontias) quadrangle of Mercury.
128.57 km diameter, (−2.98°, 147.38°) [W], quad. H-08.
[Motokiyo *Zeami* ← Jap. 世阿弥元清 Japanese Noh playwright (*c.* 1363–1443).]
H:–:AA:AS:JA:5:1976:[809,810].

Zeehaen Rupes

/ˈzɛɪhaːən ˈruːpɪz/
A ridge in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
164.02 km diameter, (49.55°, 158.27°) [W], quad. H-3.
[Du. *Zeehaen* (a ship in Tasman's Australia expedition) + L. *rupes* ('scarp').]
H:–:RU:EU:DU:5:1976:[811].

Zola

/ˈzəʊlə/
(*US* /ˈzoʊlə/)
A crater in the Shakespeare (formerly Caduceata) quadrangle of Mercury.
70.47 km diameter, (49.68°, 178.15°) [W], quad. H-3.
[Émile *Zola*, French novelist (1840–1902).]
H:–:AA:EU:FR:5:1979:[812].

Zugon†

/ˈzjuːgɔn/
(*US* /ˈzjuːgan/)
A spurious linear feature on Mercury mapped and named by Percival Lowell.
[*Zugon* ← ζυγόν (**zygon**), 'yoke', reference to the yoke used as a cross-bar by Hermes when he made the lyre.]
[813,814].

CLASSIFIED INDEX OF SURFACE FEATURES ON MERCURY

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2_4,

THE SOLAR SYSTEM

MERCURY

Albedo Features

Apollonia
Argyritis†
Aurora
Australia
Borea
Caduceata
Cyllene
Gallia
Helii Promontorium†
Heliocaminus
Hesperis
Liguria
Pentas
Phaethontias
Pieria
Pleias
Pleias Gallia†
Sinus Argiphontae†
Solitudo Admetei
Solitudo Alarum
Solitudo Aphrodites
Solitudo Argiphontae
Solitudo Atlantis
Solitudo Criophori
Solitudo Dionysi†
Solitudo Helii
Solitudo Hermae Trismegisti
Solitudo Horarum
Solitudo Iovis
Solitudo Jovis*
Solitudo Ius†
Solitudo Lycaonis
Solitudo Lyrae†
Solitudo Maiae
Solitudo Martis
Solitudo Neptuni
Solitudo Panos†
Solitudo Persephones
Solitudo Phoenicis
Solitudo Promethei
Tricrena

Craters

Abedin
Abu Nuwas
Africanus Horton
Ahmad Baba
Ailey
Aksakov
Al-Akhtal
Alencar
Al-Hamadhani
Al-Jāhiz
Amaral
Amru Al-Qays
Andal
Apollodorus
Aristoxenus
Aśvaghosa
Atget
Bach
Balagtas
Balanchine
Balzac
Barma
Bartók
Bashō
Beckett
Beethoven
Bek
Belinskij
Bello
Benoit
Berkel
Bernini
Bjornson
Boccaccio
Boethius
Botticelli
Brahms
Bramante
Brontë
Bruegel
Brunelleschi
Burns
Byron
Callicrates
Calvino
Camões
Carducci
Catullus
Cervantes
Cézanne
Chaikovskij
Chao Meng-Fu
Chekhov
Chesterton
Chiang K'ui
Chŏng Ch'ŏl
Chopin
Chu Ta
Coleridge
Copland
Copley
Couperin
Cunningham
Dalí
Darío
Debussy
Degas
de Graft
Delacroix
Derain
Derzhavin
Despréz
Dickens
Disney
Dominici
Donne
Dostoevskij
Dowland

Renoir
Repin
Riemenschneider
Rilke
Rimbaud
Rodin
Rubens
Rublev
Rūdaki
Rude
Rūmī
Rustaveli
Sadī
Saikaku
Sander
Sarmiento
Sayat-Nova
Scarlatti
Schoenberg
Schubert
Scopas
Sei
Seuss
Shakespeare
Shelley
Sher-Gil
Shevchenko
Sholem Aleichem
Sibelius
Simonides
Sinan
Smetana
Snorri
Sophocles
Sor Juana
Sōseki
Sōtatsu
Sousa
Spitteler
Steichen
Stevenson
Stieglitz
Stravinsky
Strindberg
Sullivan
Sūr Dās
Surikov
Sveinsdóttir
Takanobu
Takayoshi
Tansen
Thākur
Theophanes
Thoreau
Tintoretto
Titian
Tolkien
Tolstoj
To Ngoc Van
Tryggvadóttir
Ts'ai Wen-Chi
Ts'ao Chan
Tsurayuki
Tung Yüan
Turgenev
Tyagaraja
Unkei
Ustad Isa
Vālmiki
Van Dijck
Van Eyck
van Gogh
Velázquez
Verdi
Vincente
Vivaldi
Vlaminck
Vyāsa
Wagner
Wang Meng
Warhol
Waters
Wergeland
Whitman
Wren
Xiao Zhao
Yakovlev[†]
Yeats
Yoshikawa
Yun Sŏn-Do
Zeami
Zola

Dorsa

Antoniadi Dorsum
Schiaparelli Dorsum

Fossae

Pantheon Fossae

Montes

Caloris Montes

Planitiae

Borealis Planitia
Budh Planitia
Caloris Planitia
Odin Planitia
Sobkou Planitia
Suisei Planitia
Tir Planitia

Promontoria

See under ***Albedo features***.

Rupēs

Adventure Rupes
Astrolabe Rupes
Beagle Rupes
Discovery Rupes
Endeavour Rupes
Fram Rupes
Gjöa Rupes
Heemskerck Rupes
Hero Rupes
Mirni Rupes
Pourquoi-Pas Rupes
Resolution Rupes
Santa María Rupes
Victoria Rupes
Vostok Rupes
Zarya Rupes
Zeehaen Rupes

Sinūs

See under ***Albedo features***.

Solitudines

See under ***Albedo features***.

Valles

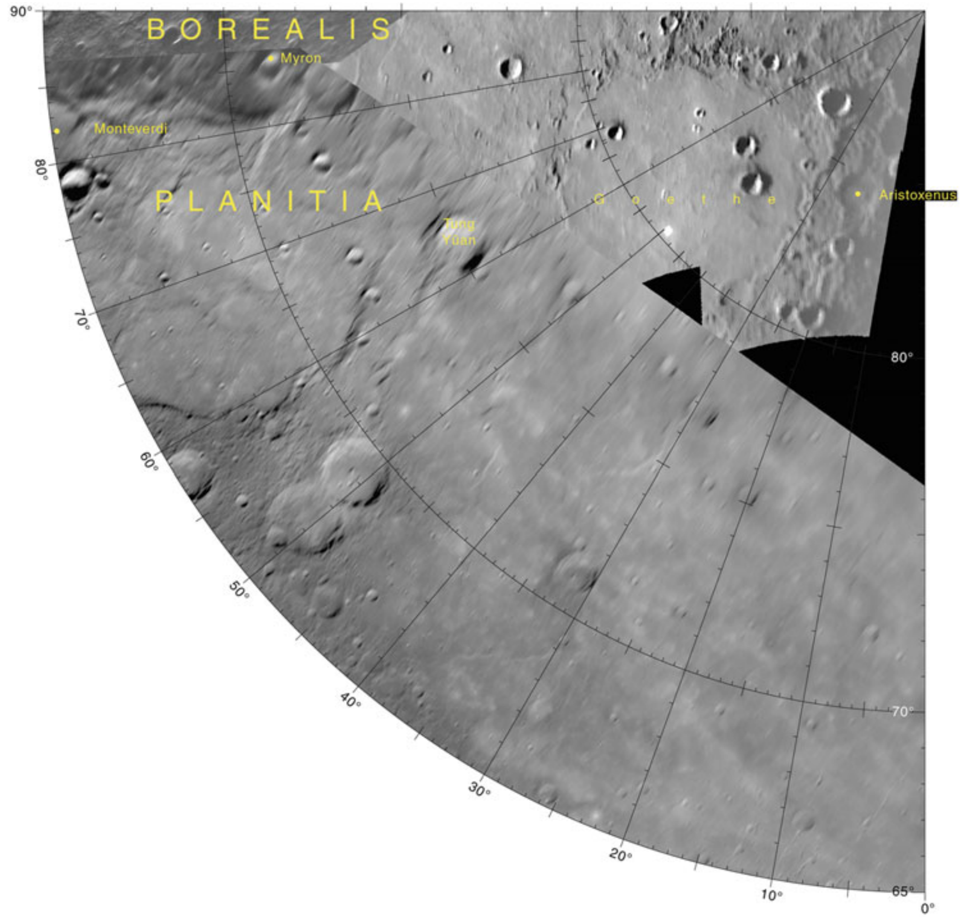
Admeti Vallis†
Arecibo Vallis
Goldstone Vallis
Haystack Vallis
Horarum Vallis†
Ixionis Vallis†
Neptuni Vallis†
Simeiz Vallis†

Lowell's Nomenclature [1,2]

Agetor†
Agoraios†
Ala†
Alae regio†
Anguis†
Anguis regio†
Aphorismos†
Argi regio†
Boukolos†
Caducei regio†
Caduceus†
Carvara†
Chelydoreae regio†
Chlamys†
Corneus†
Cornu†
Cyllene†
Cyllenes regio†

MERCURY ATLAS

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2_5,

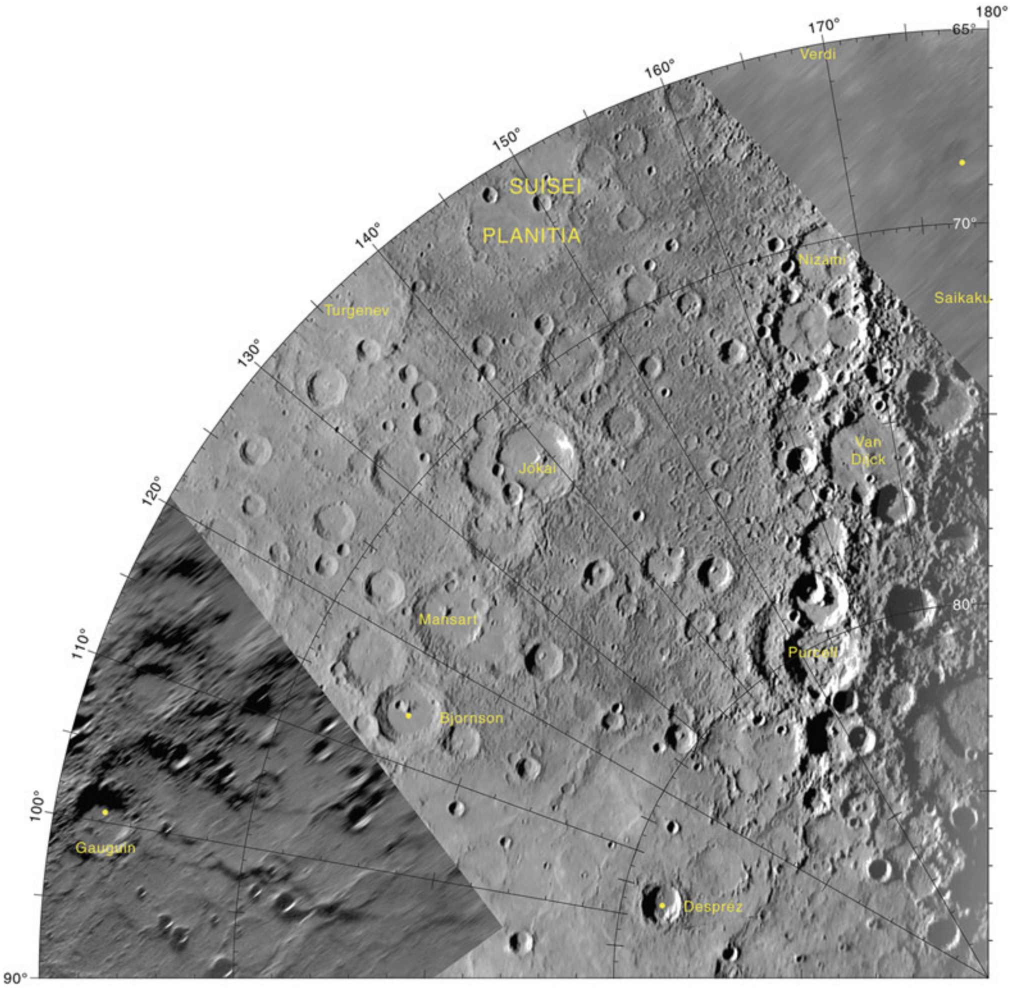


Map H-1-1: Borealis Quadrangle

$(0° < \lambda < 90°,\ +65° < \phi < +90°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-1.pdf

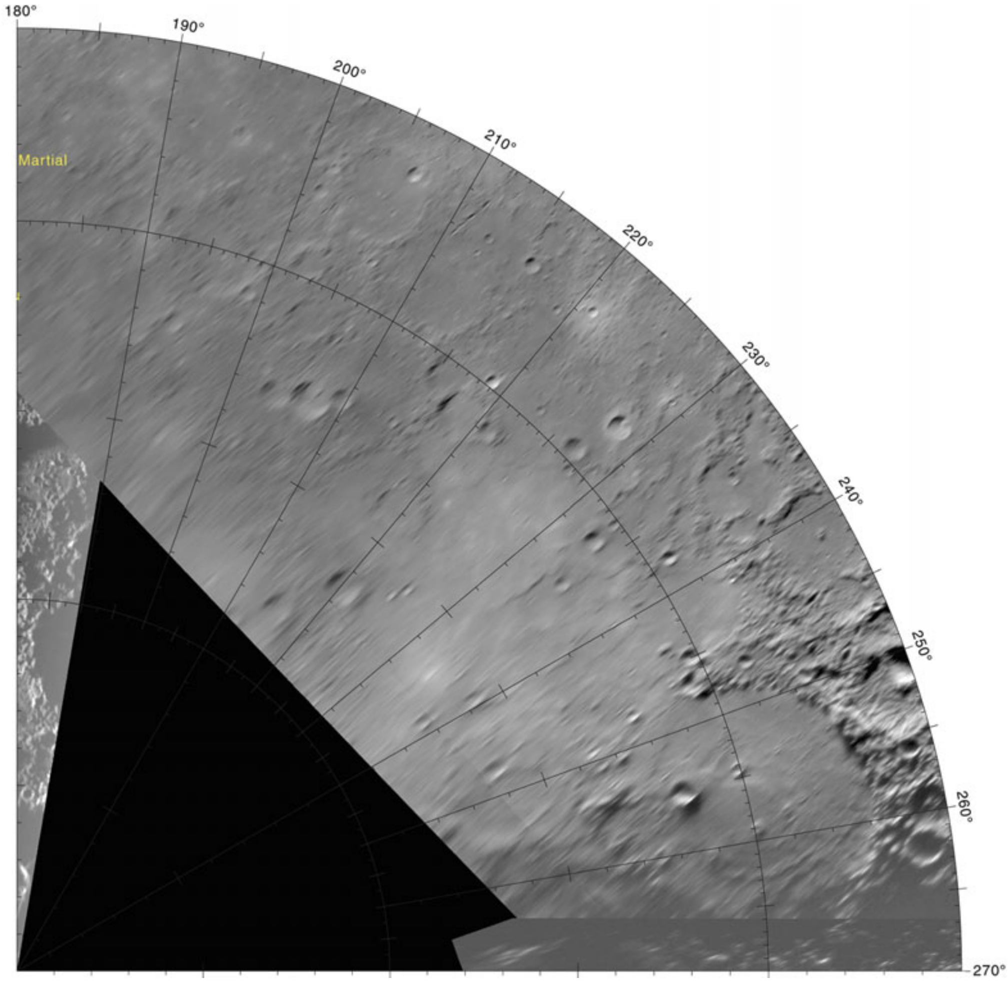


Map H-1-2: Borealis Quadrangle

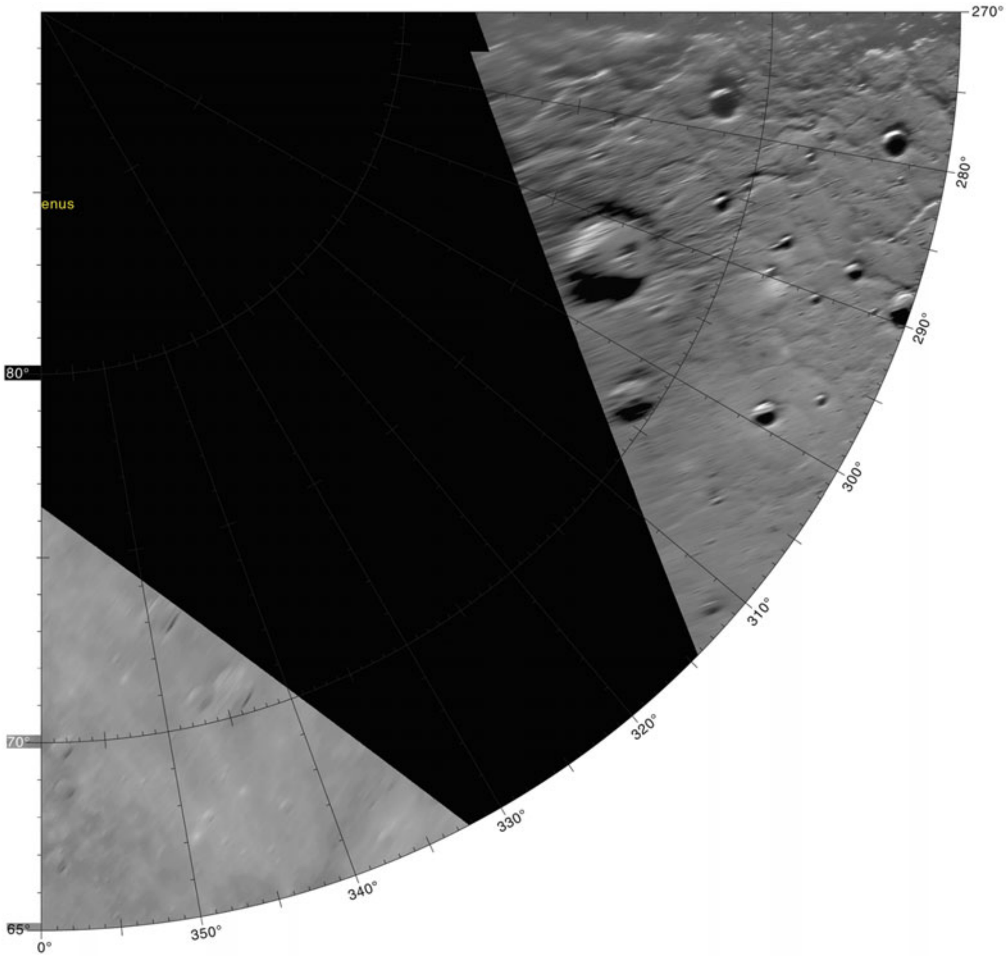
$(90° < \lambda < 180°, +65° < \phi < +90°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-1.pdf



Map H-1-3: Borealis Quadrangle
$(180° < \lambda < 270°,\ +65° < \phi < +90°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-1.pdf

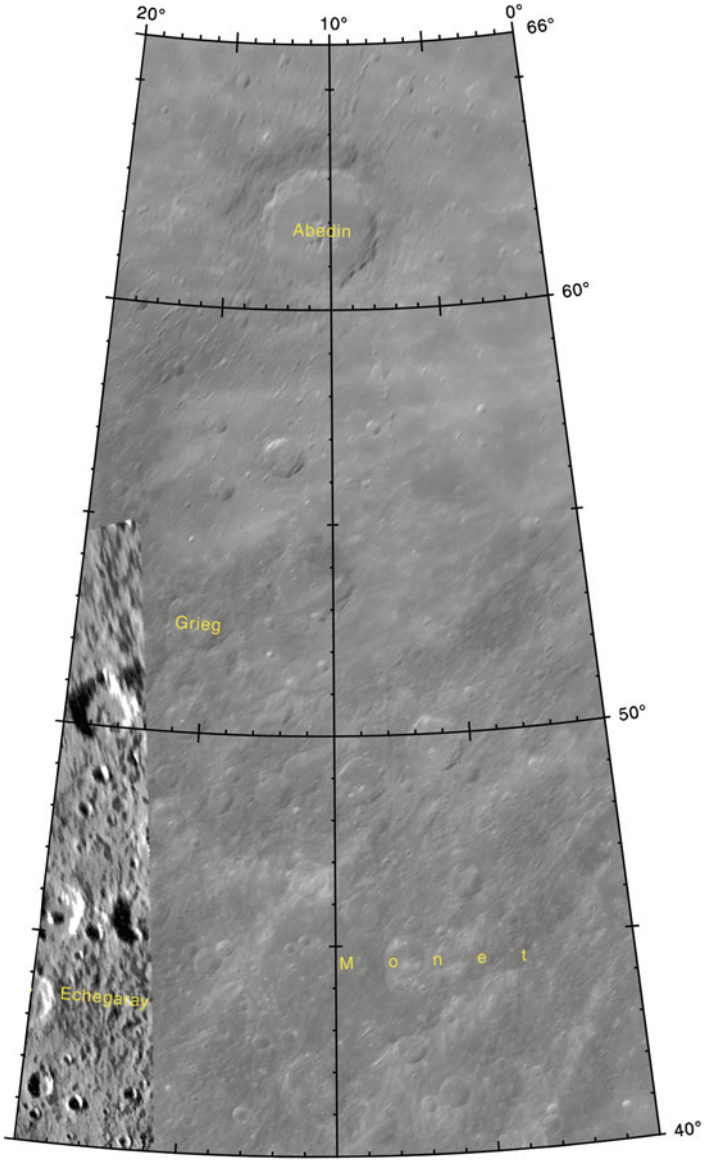


Map H-1-4: Borealis Quadrangle

$(270° < \lambda < 360°, +65° < \phi < +90°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-1.pdf

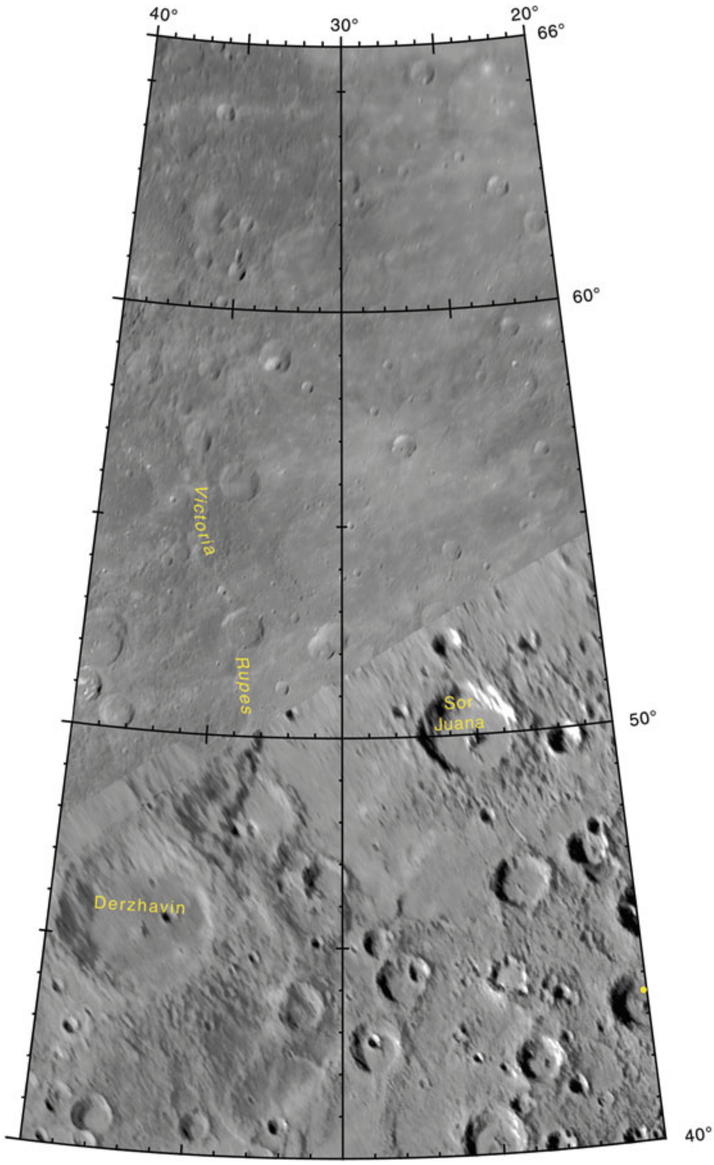


Map H-2-1: Victoria Quadrangle

$(0° < \lambda < 20°, +40° < \phi < +66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-2.pdf

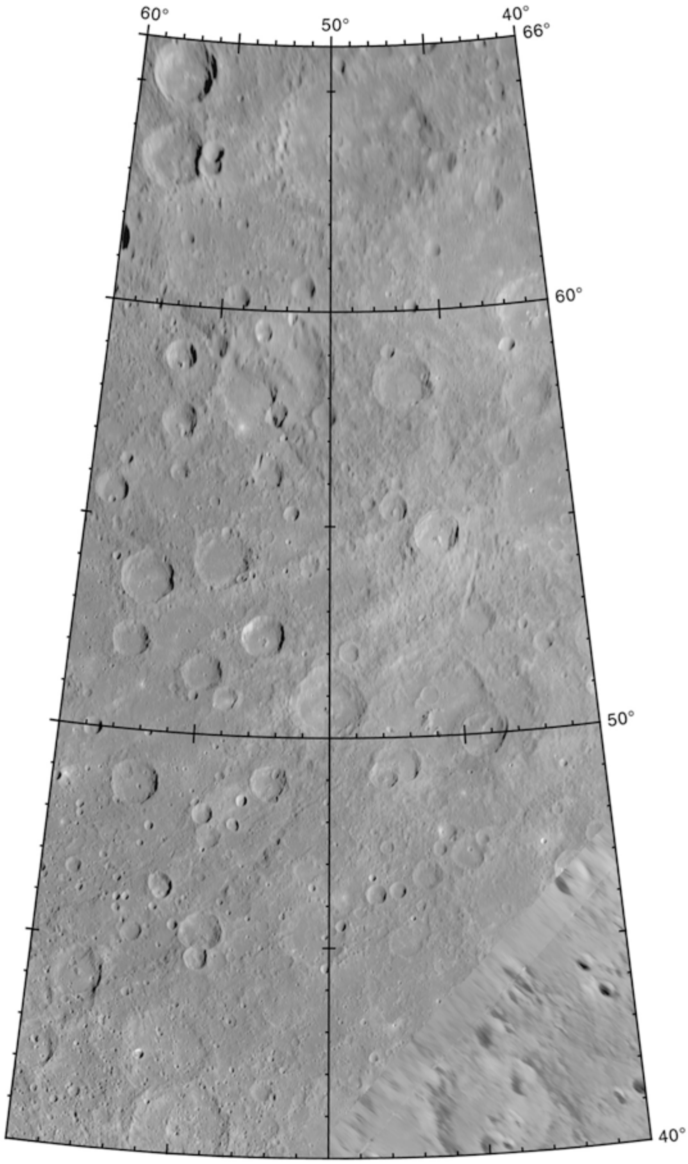


Map H-2-2: Victoria Quadrangle

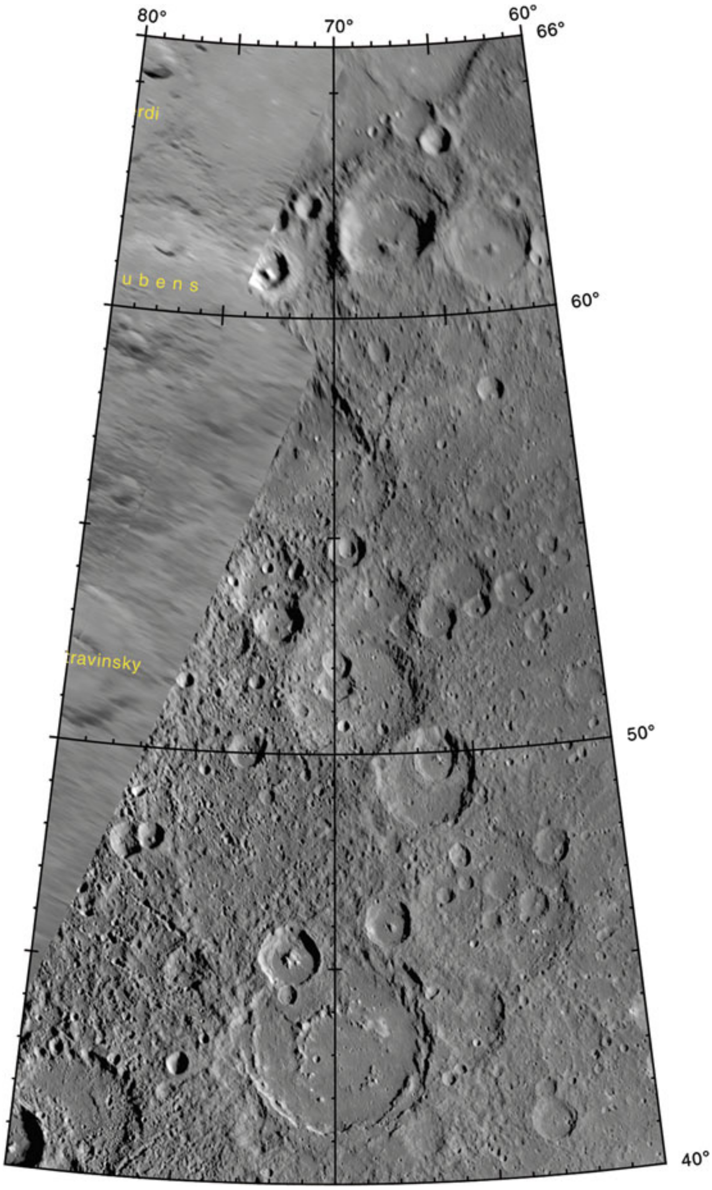
$(20^\circ < \lambda < 40^\circ, +40^\circ < \phi < +66^\circ)$

Courtesy of USGS Astrogeology Science Center

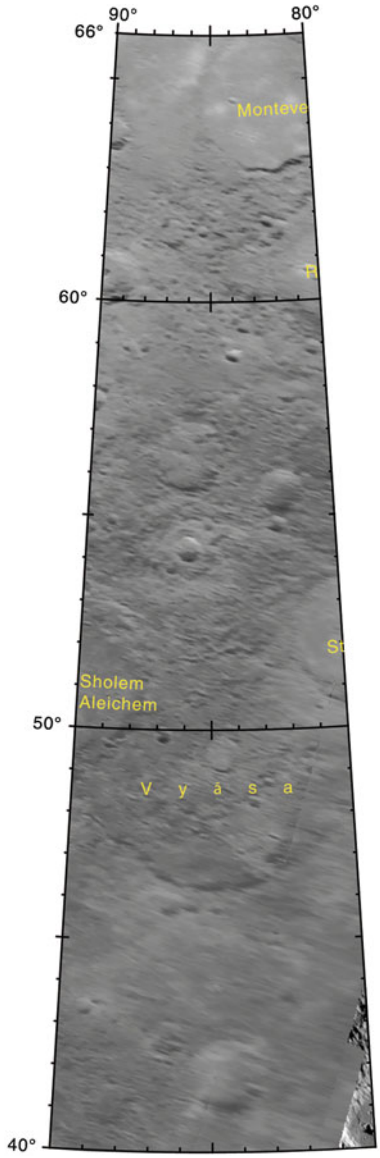
http://planetarynames.wr.usgs.gov/images/h-2.pdf



Map H-2-3: Victoria Quadrangle
$(40° < \lambda < 60°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-2.pdf



Map H-2-4: Victoria Quadrangle
$(60° < \lambda < 80°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-2.pdf

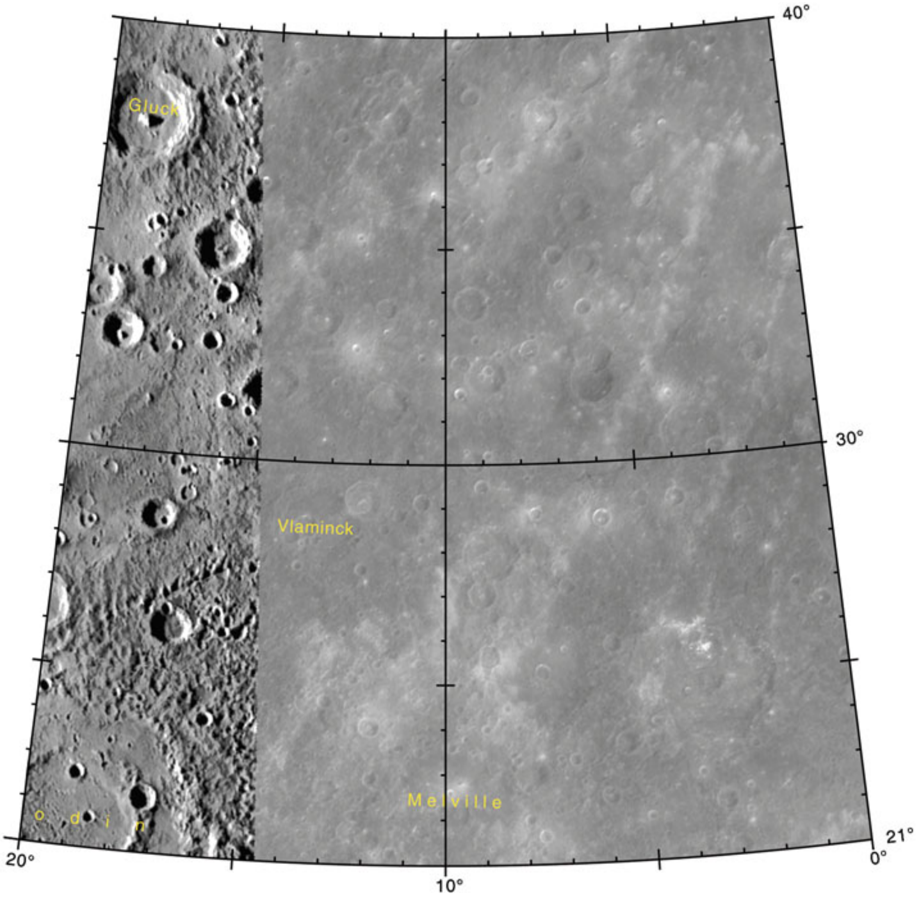


Map H-2-5: Victoria Quadrangle

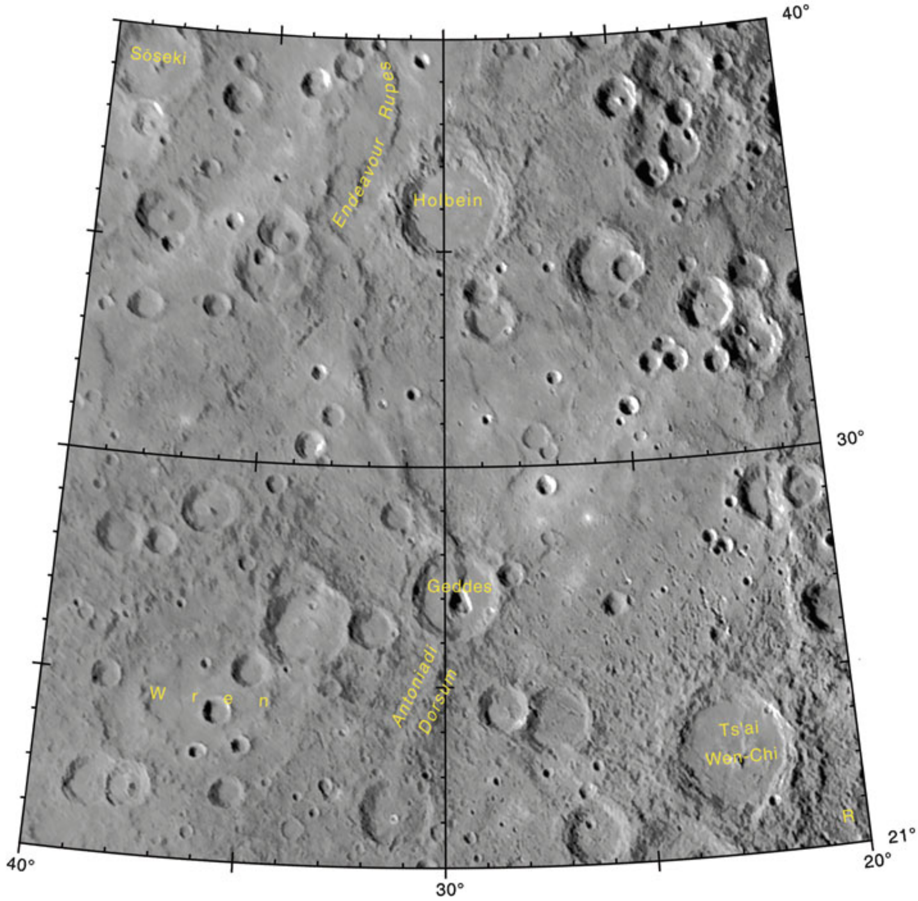
$(80° < \lambda < 90°, +40° < \phi < +66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-2.pdf



Map H-2-6: Victoria Quadrangle
$(0° < \lambda < 20°, +21° < \phi < +40°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-2.pdf

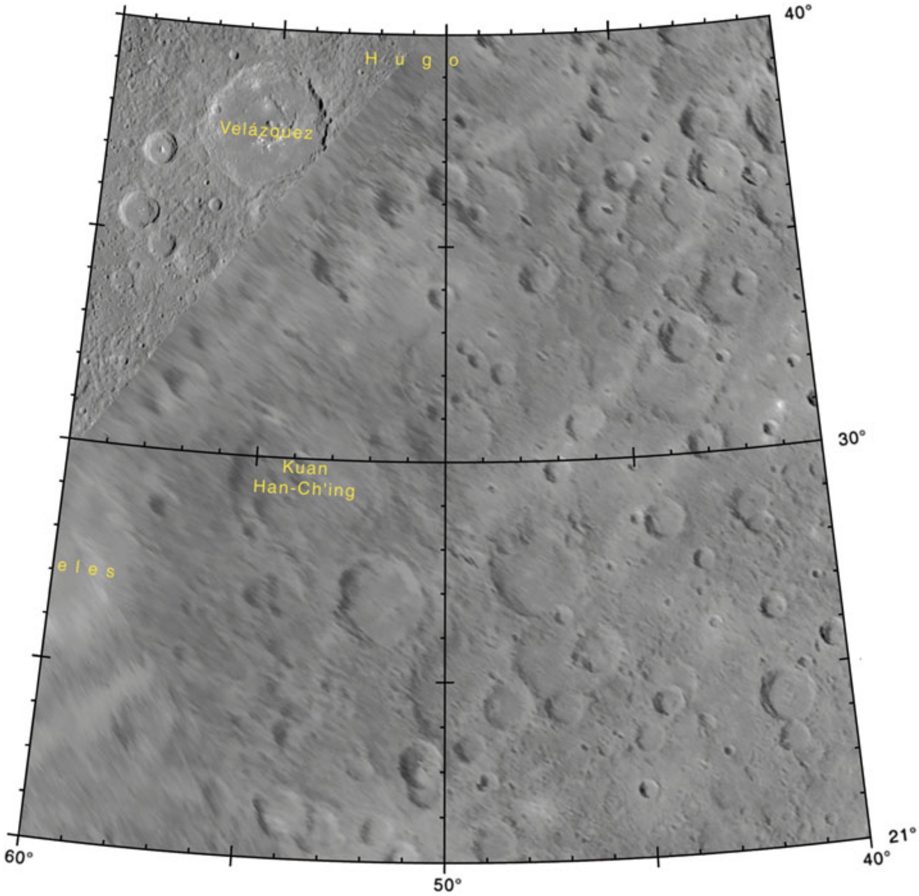


Map H-2-7: Victoria Quadrangle

$(20^\circ < \lambda < 40^\circ, +21^\circ < \phi < +40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-2.pdf

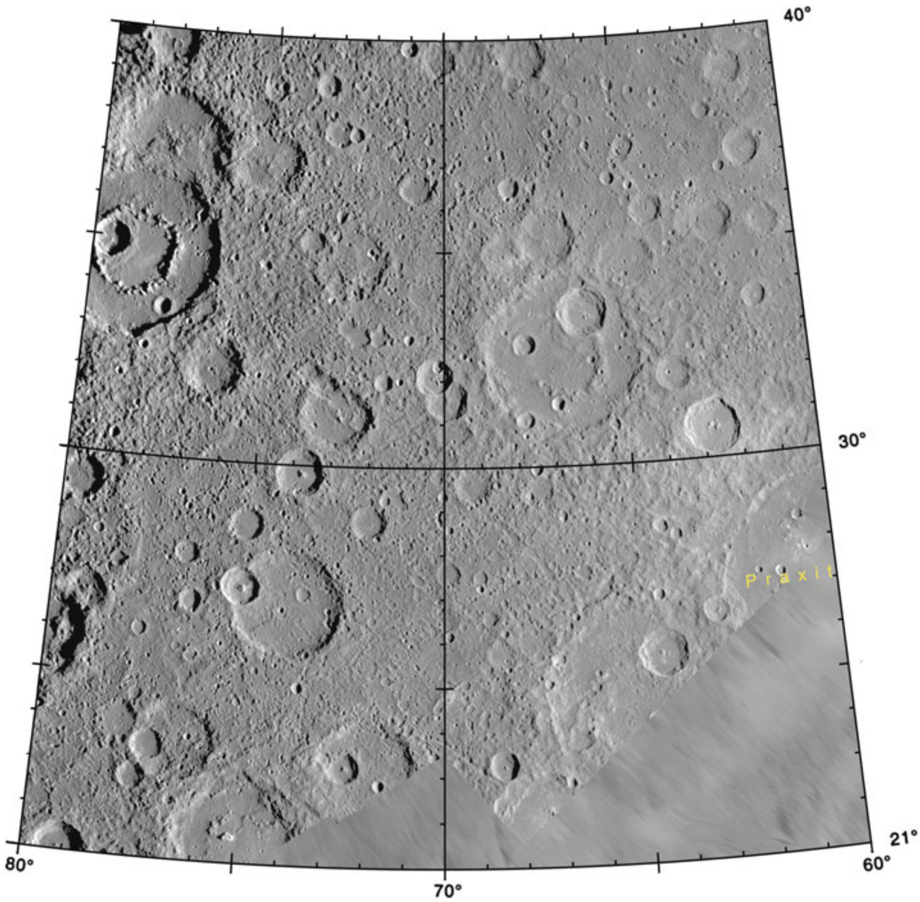


Map H-2-8: Victoria Quadrangle

$(40° < \lambda < 60°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-2.pdf

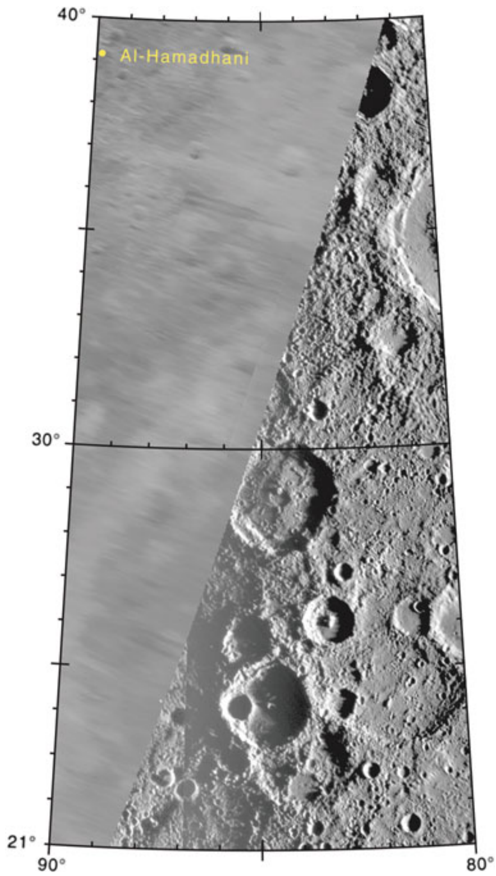


Map H-2-9: Victoria Quadrangle

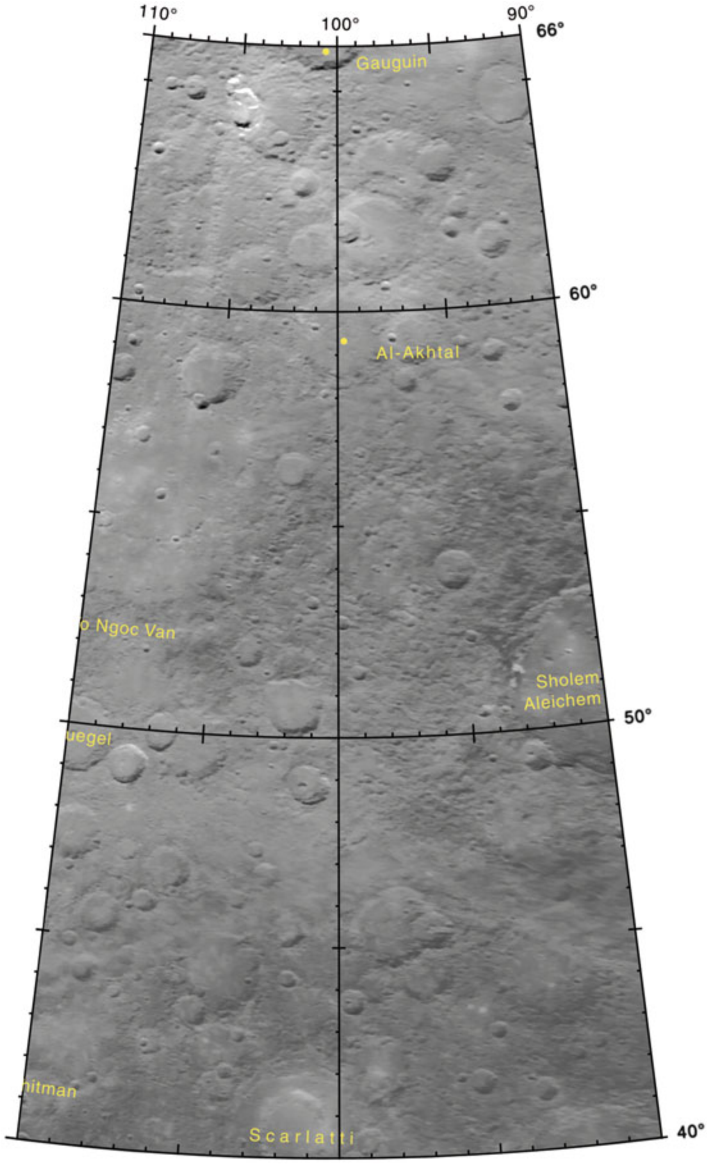
$(60^\circ < \lambda < 80^\circ, +21^\circ < \phi < +40^\circ)$

Courtesy of USGS Astrogeology Science Center

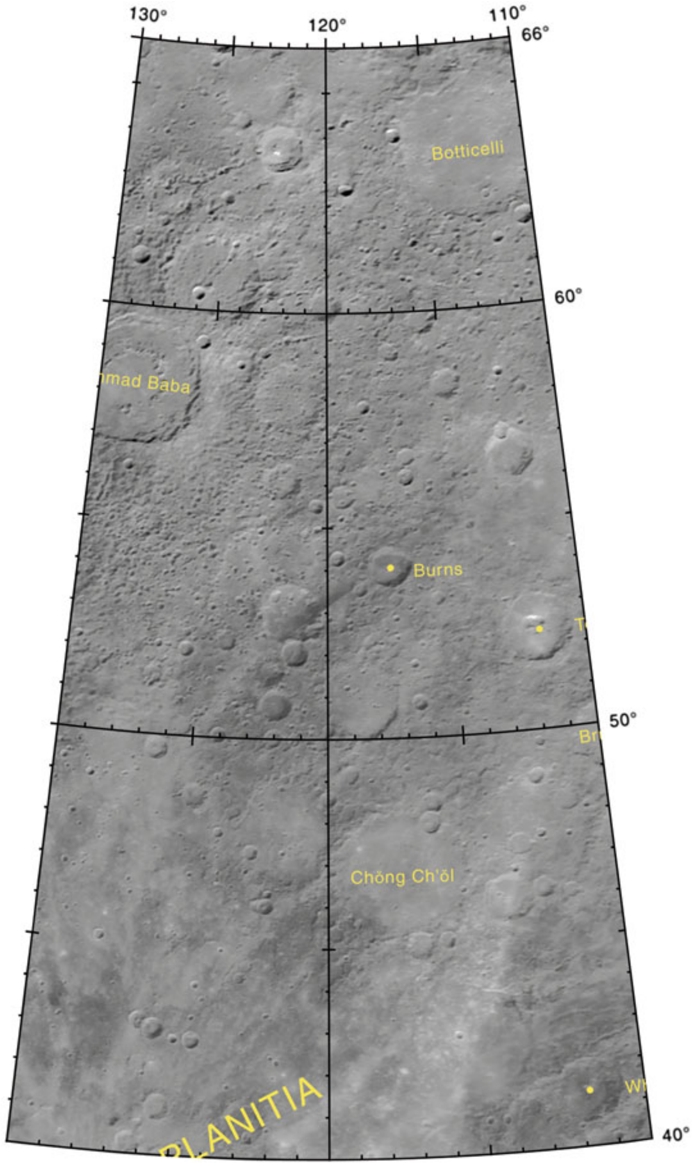
http://planetarynames.wr.usgs.gov/images/h-2.pdf



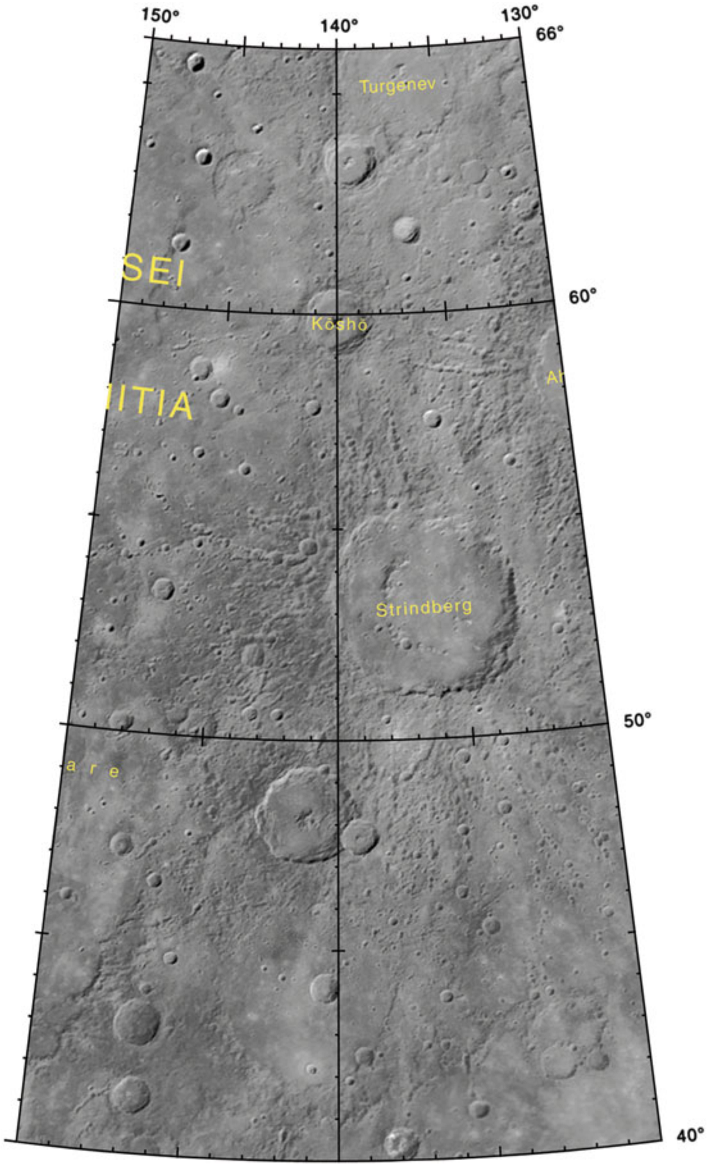
Map H-2-10: Victoria Quadrangle
$(80^\circ < \lambda < 90^\circ, +21^\circ < \phi < +40^\circ)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-2.pdf



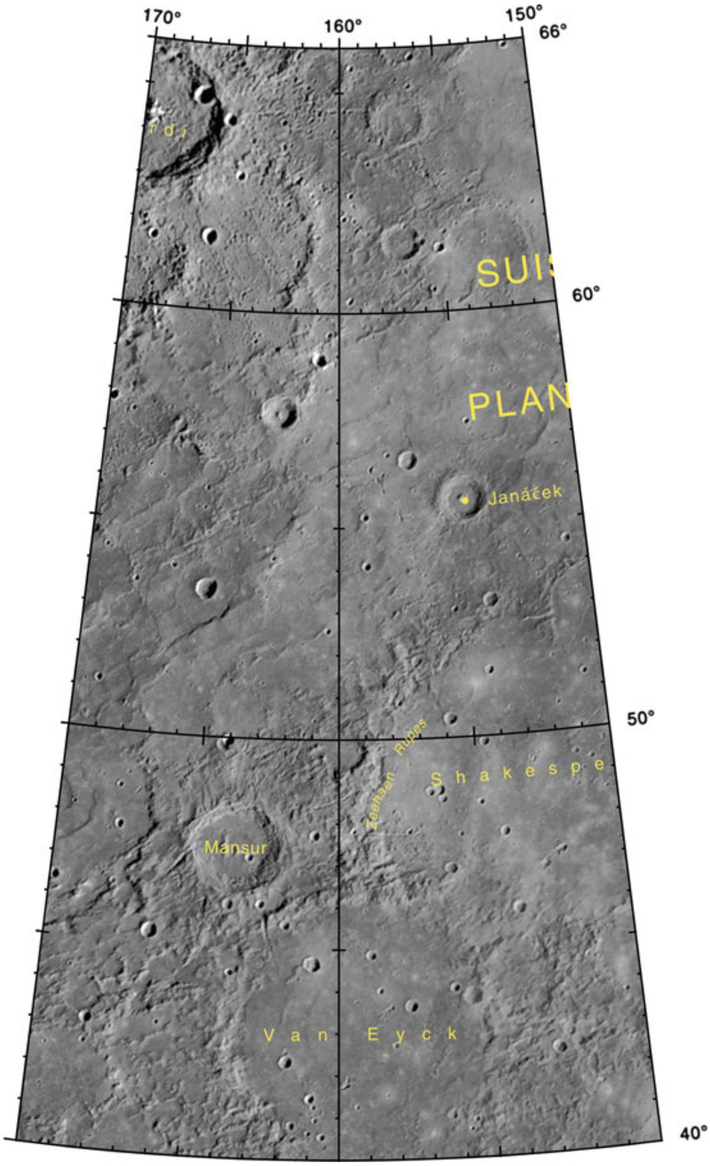
Map H-3-1: Shakespeare Quadrangle
$(90^\circ < \lambda < 110^\circ, +40^\circ < \phi < +66^\circ)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-3.pdf



Map H-3-2: Shakespeare Quadrangle
$(110° < \lambda < 130°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-3.pdf



Map H-3-3: Shakespeare Quadrangle
$(130° < \lambda < 150°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-3.pdf

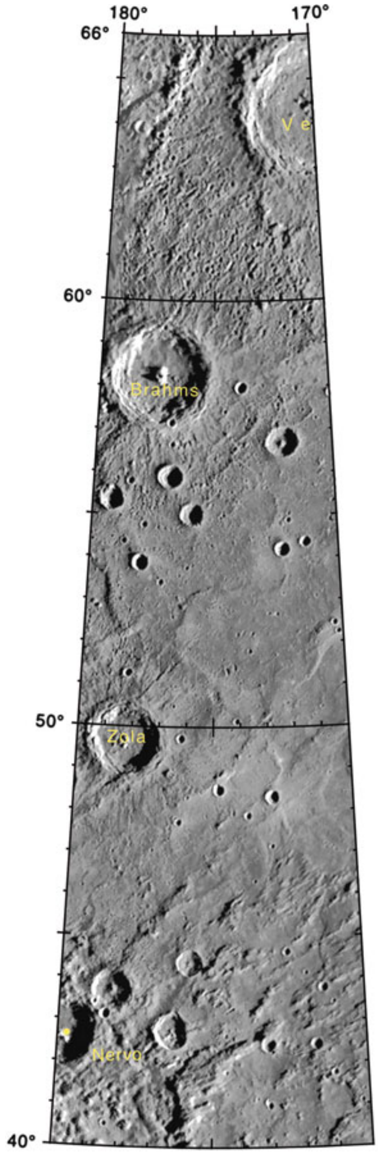


Map H-3-4: Shakespeare Quadrangle

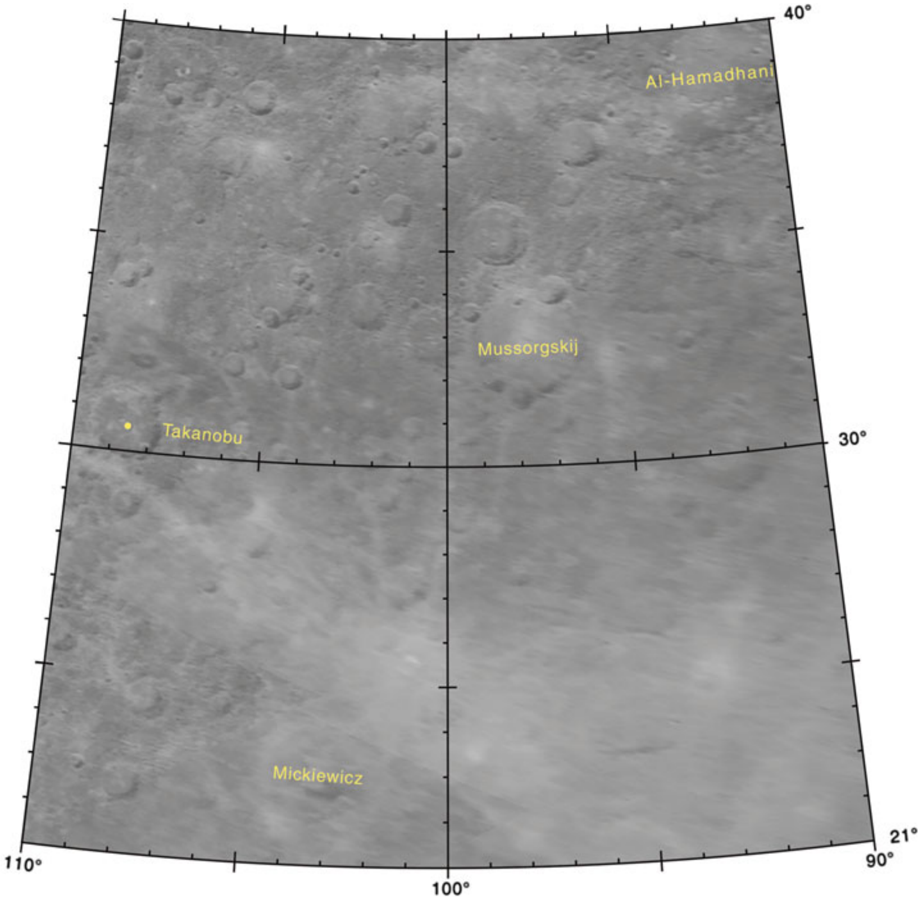
$(150° < \lambda < 170°, +40° < \phi < +66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-3.pdf



Map H-3-5: Shakespeare Quadrangle
$(170° < \lambda < 180°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-3.pdf



Map H-3-6: Shakespeare Quadrangle
$(90° < \lambda < 110°, +21° < \phi < +40°)$
Courtesy of USGS Astrogeology Science Center
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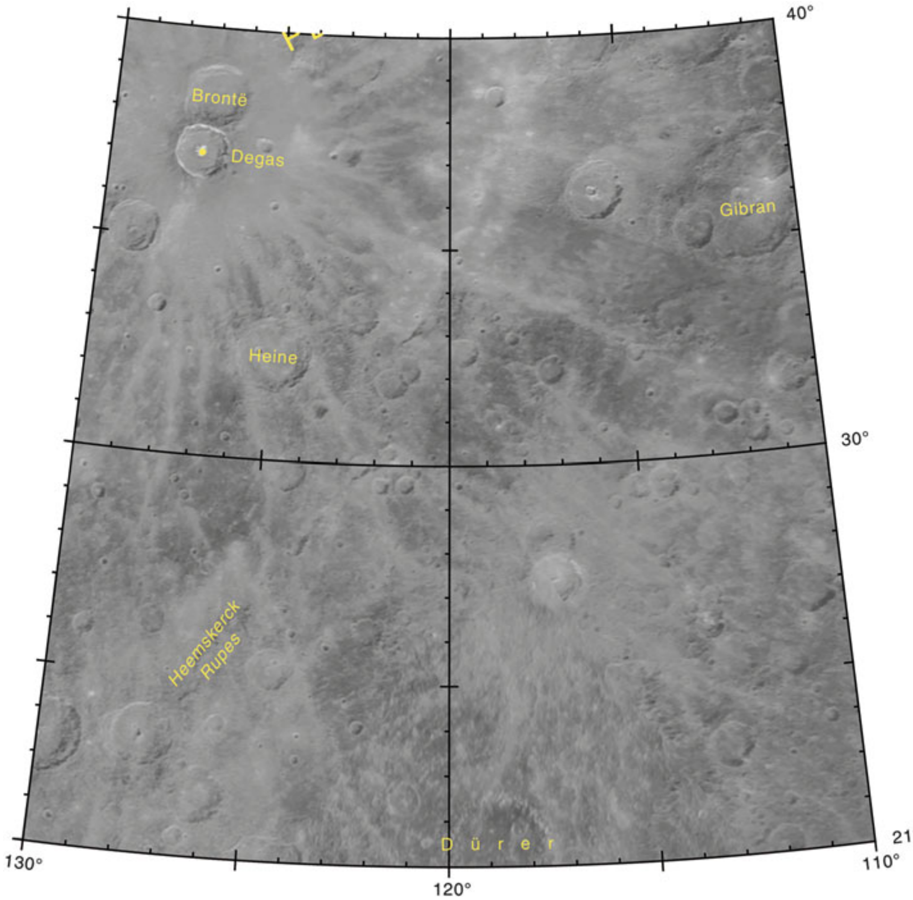
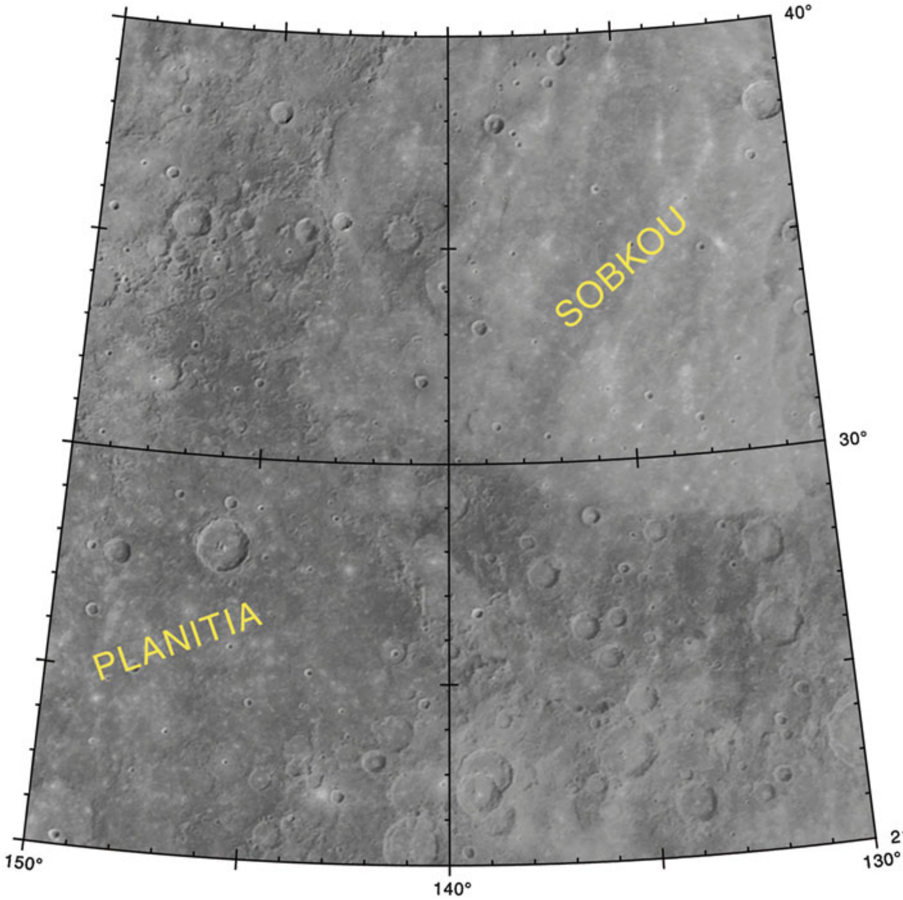


Map H-3-7: Shakespeare Quadrangle
($110° < \lambda < 130°$, $+21° < \phi < +40°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-3.pdf

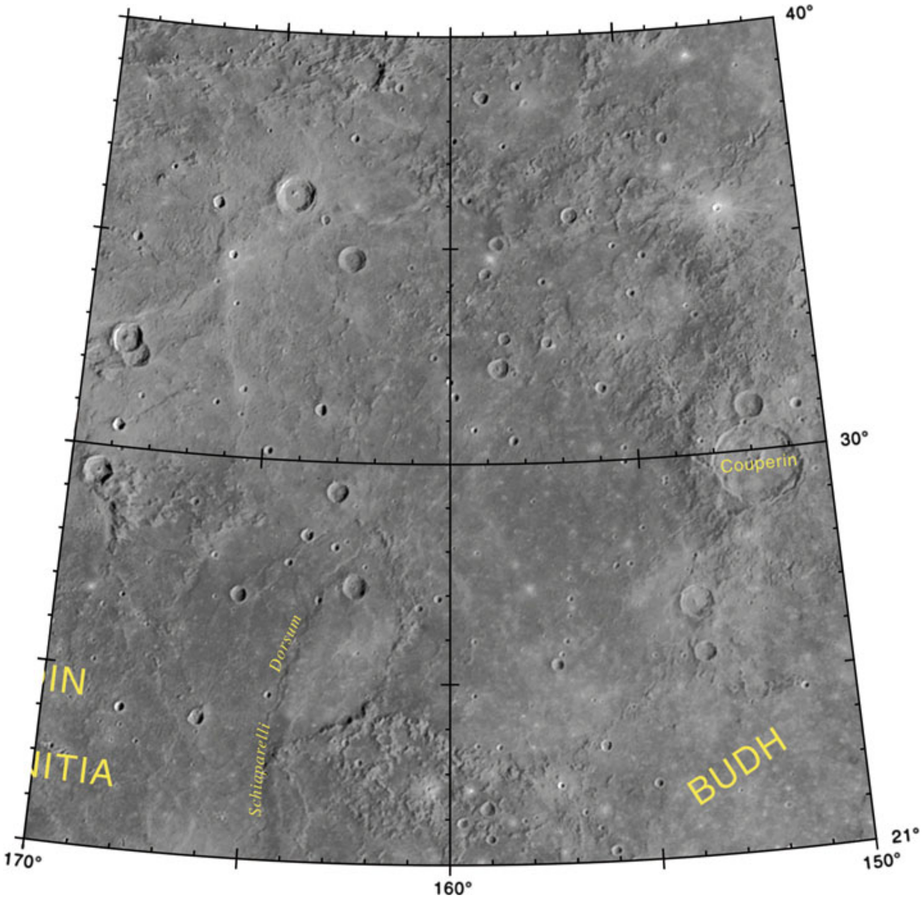


Map H-3-8: Shakespeare Quadrangle

$(130° < \lambda < 150°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-3.pdf

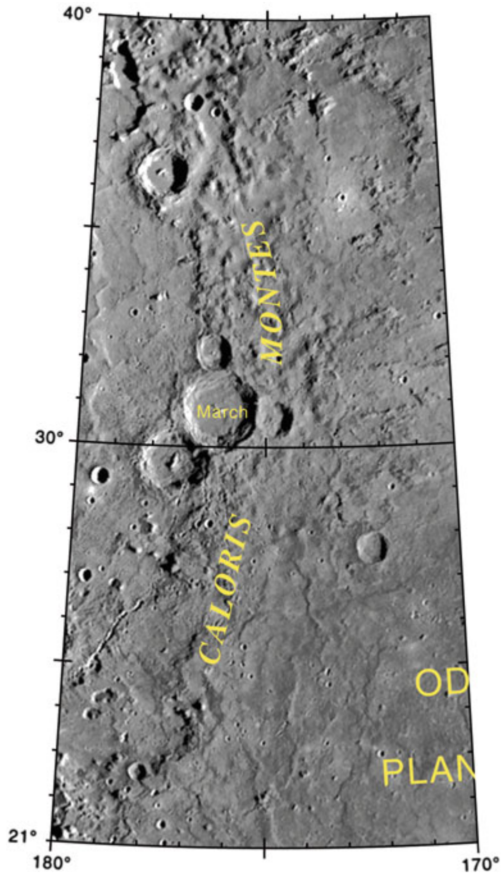


Map H-3-9: Shakespeare Quadrangle

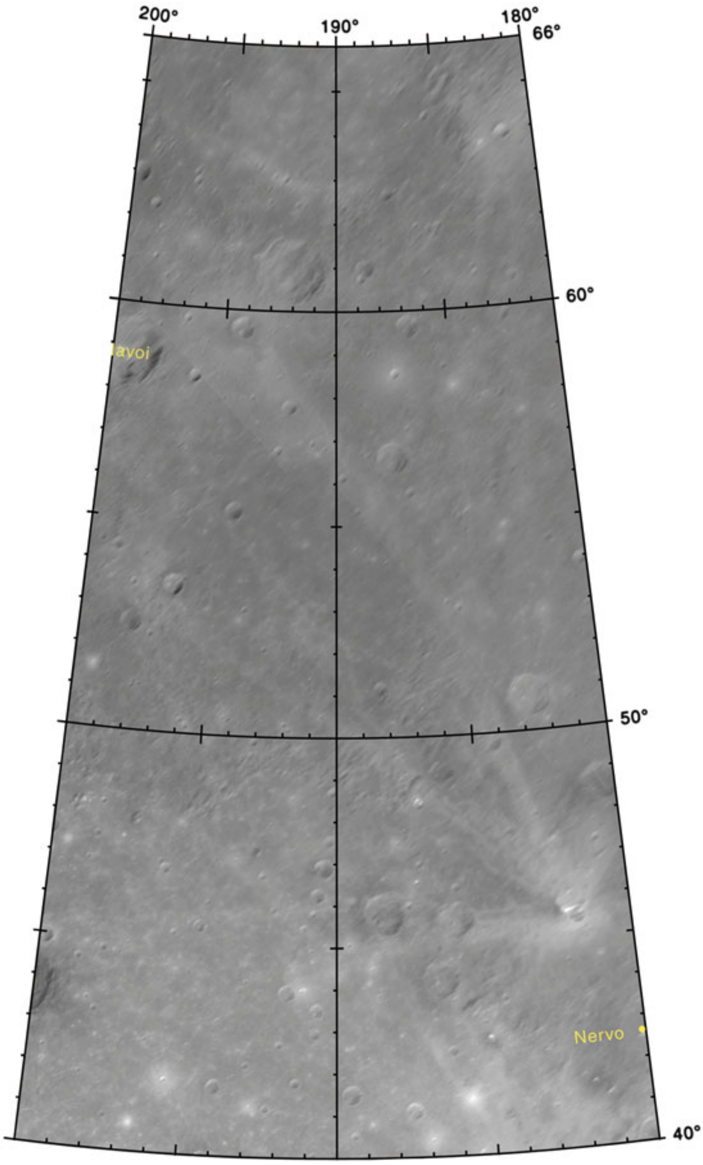
$(150° < \lambda < 170°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

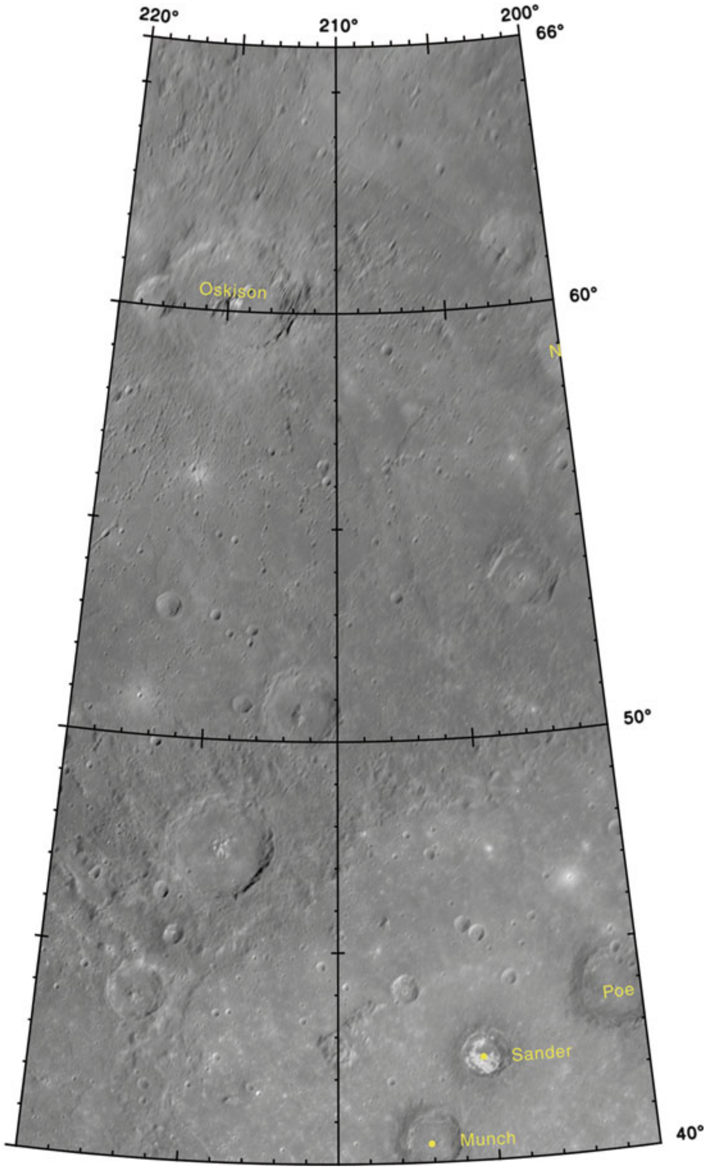
http://planetarynames.wr.usgs.gov/images/h-3.pdf



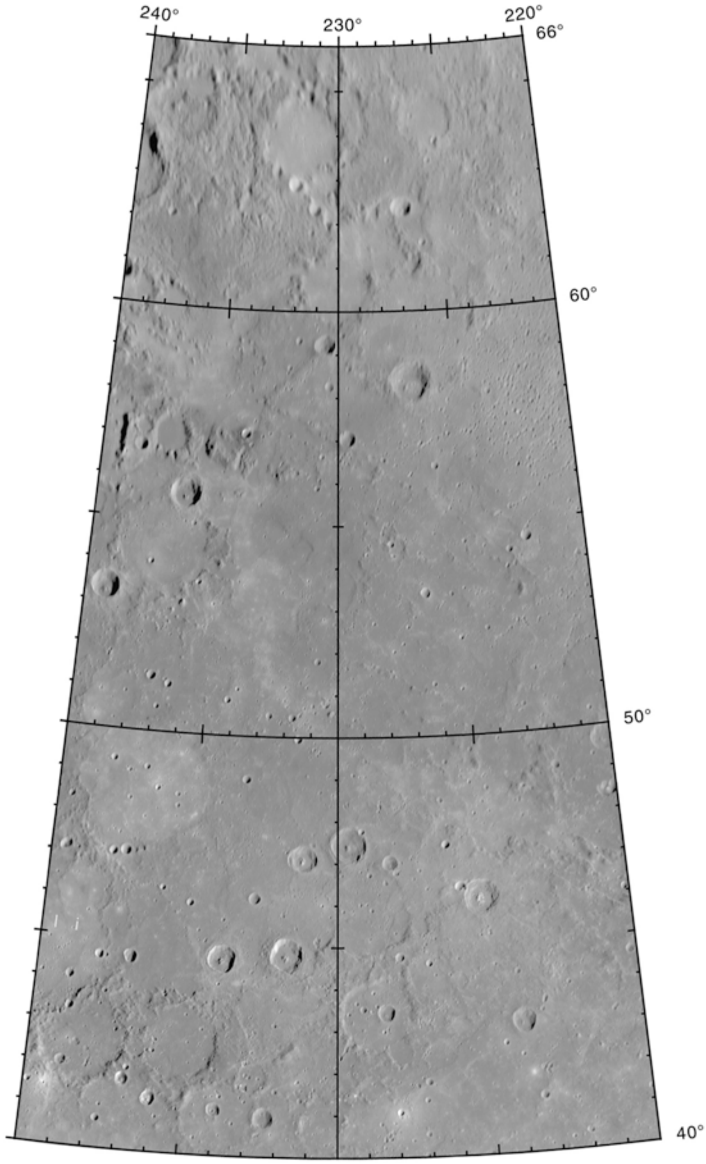
Map H-3-10: Shakespeare Quadrangle
($170° < \lambda < 180°$, $+21° < \phi < +40°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-3.pdf



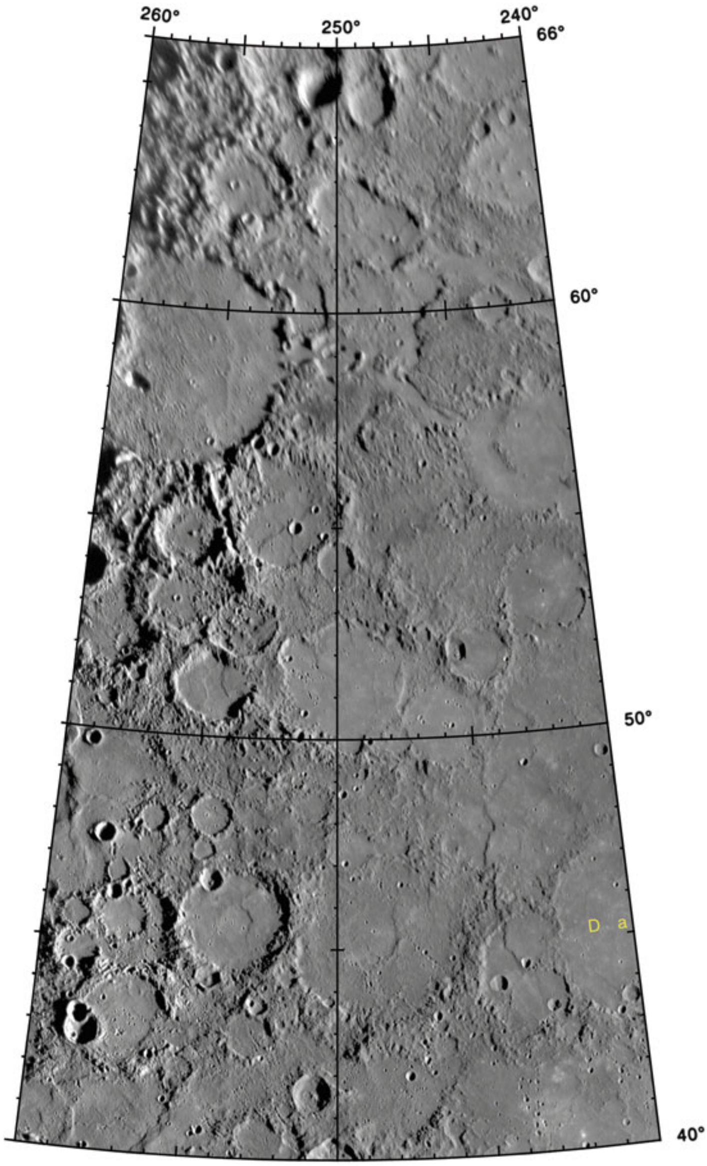
Map H-4-1: Raditladi Quadrangle
$(180° < \lambda < 200°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-4.pdf



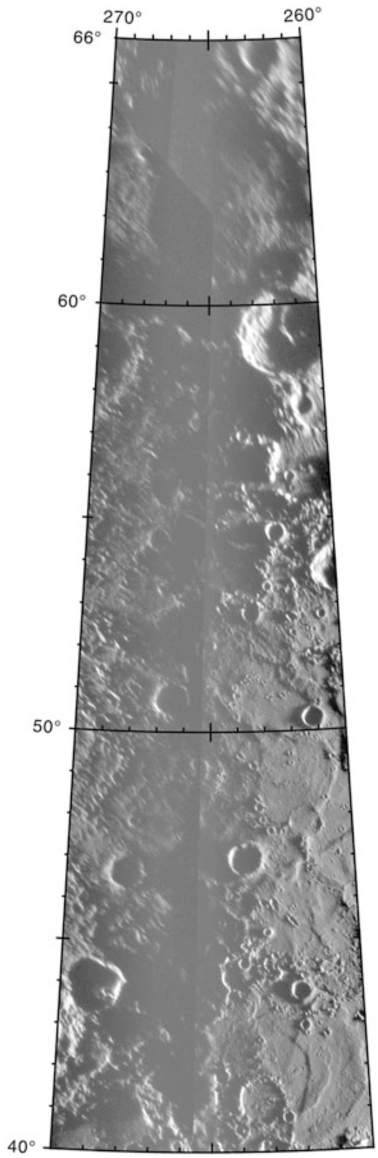
Map H-4-2: Raditladi Quadrangle
($200° < \lambda < 220°$, $+40° < \phi < +66°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-4.pdf



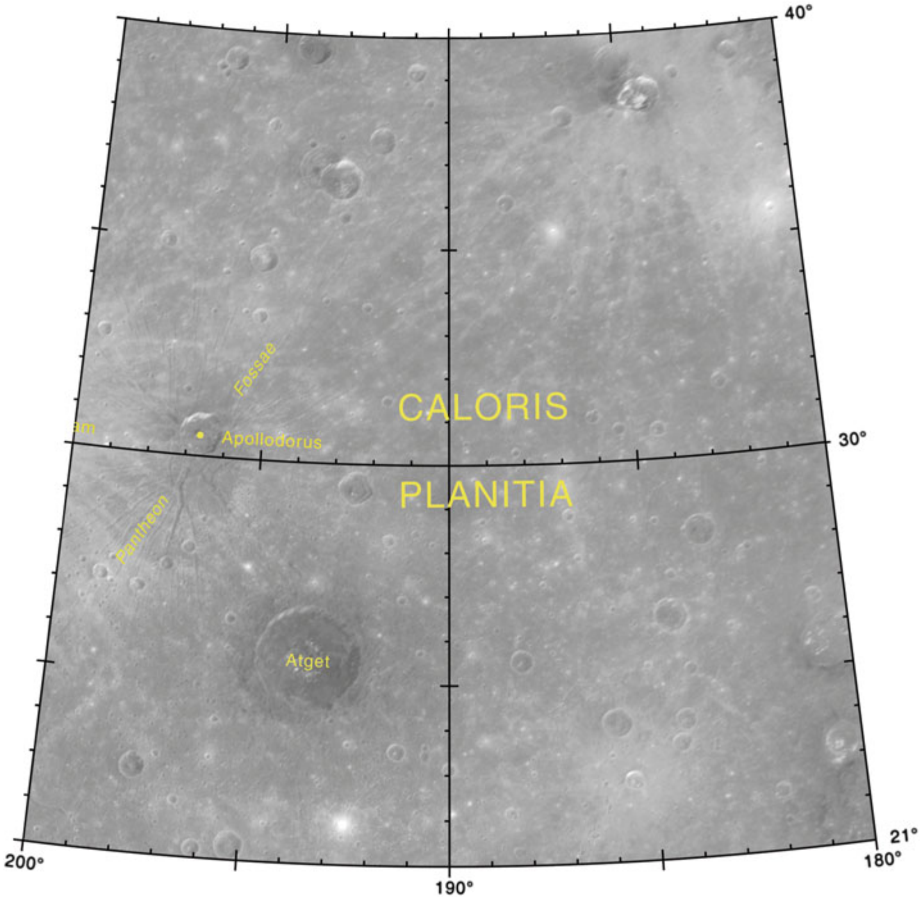
Map H-4-3: Raditladi Quadrangle
($220° < \lambda < 240°$, $+40° < \phi < +66°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-4.pdf



Map H-4-4: Raditladi Quadrangle
$(240° < \lambda < 260°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-4.pdf



Map H-4-5: Raditladi Quadrangle
($260° < \lambda < 270°$, $+40° < \phi < +66°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-4.pdf

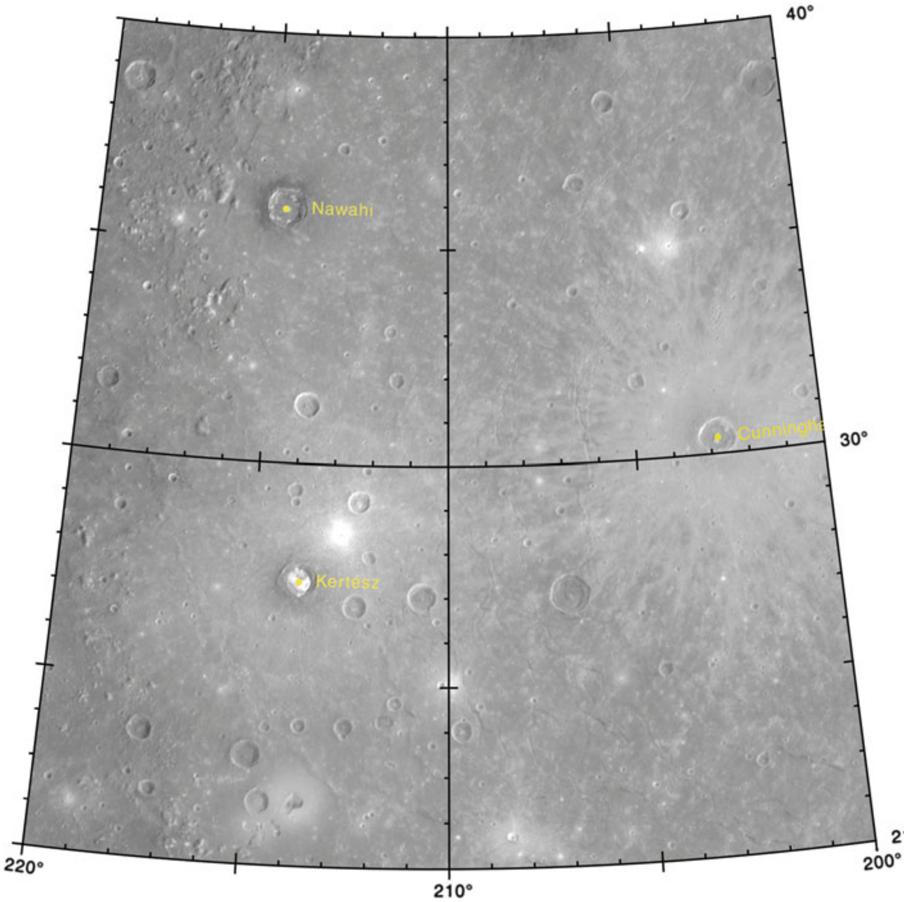


Map H-4-6: Raditladi Quadrangle

$(180^\circ < \lambda < 200^\circ,\ +21^\circ < \phi < +40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-4.pdf

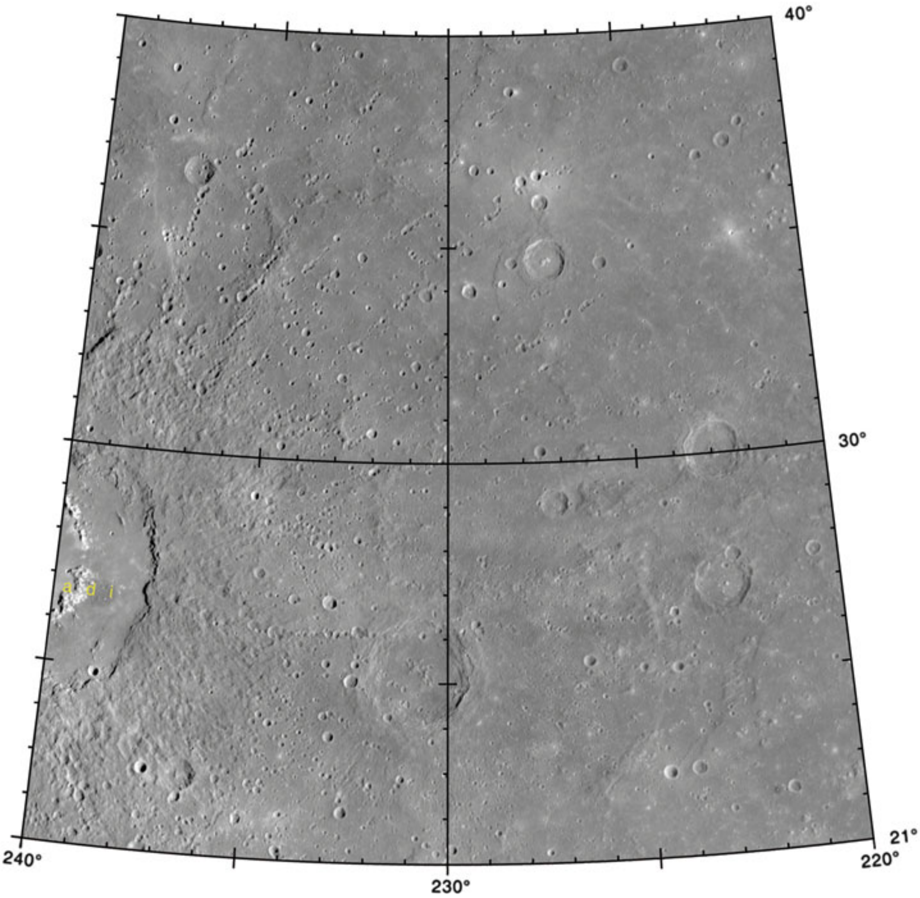


Map H-4-7: Raditladi Quadrangle

$(200° < \lambda < 220°,\ +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-4.pdf



Map H-4-8: Raditladi Quadrangle

$(220^\circ < \lambda < 240^\circ,\ +21^\circ < \phi < +40^\circ)$

Courtesy of USGS Astrogeology Science Center

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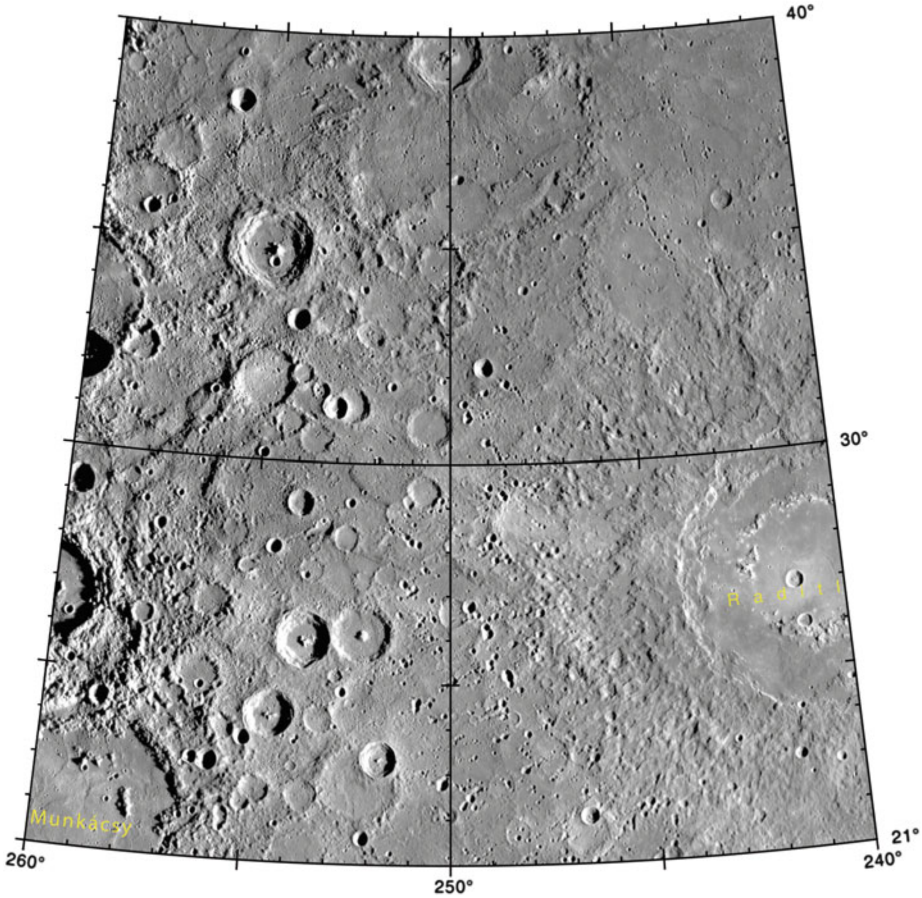
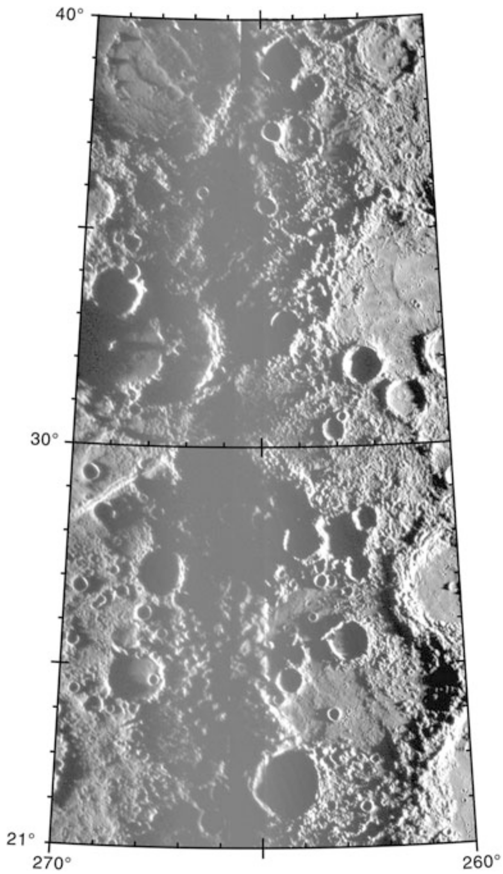


Map H-4-9: Raditladi Quadrangle
($240° < \lambda < 260°$, $+21° < \phi < +40°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-4.pdf

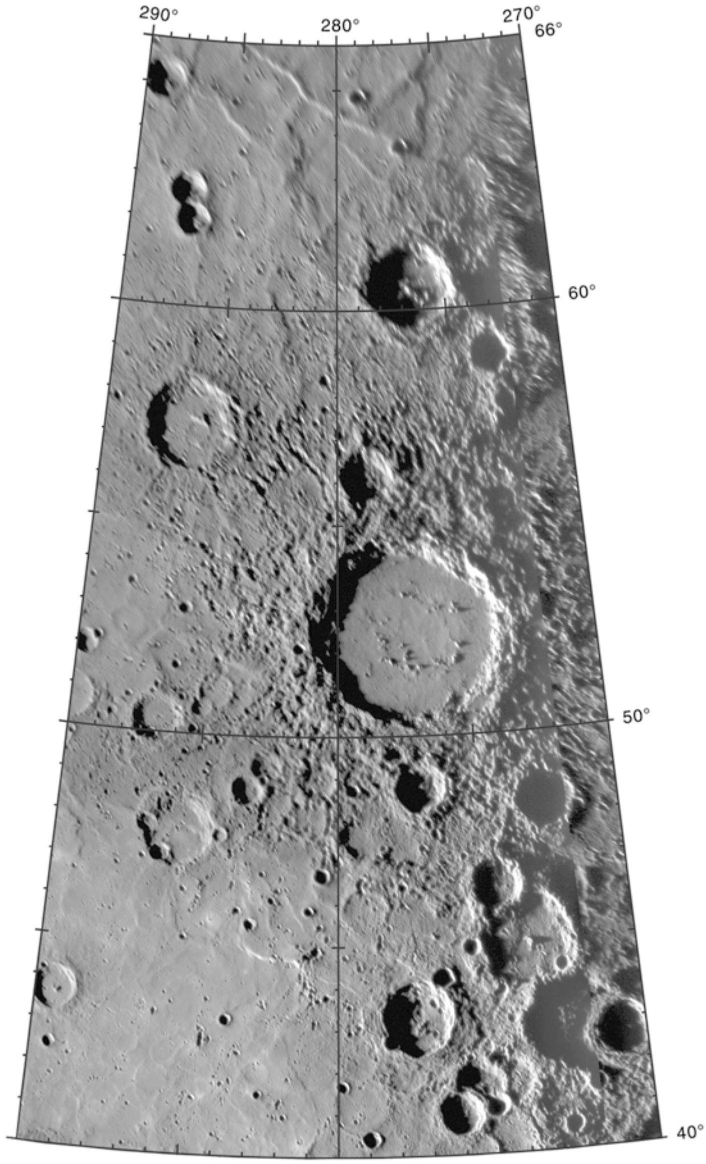


Map H-4-10: Raditladi Quadrangle

$(260° < \lambda < 270°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-4.pdf

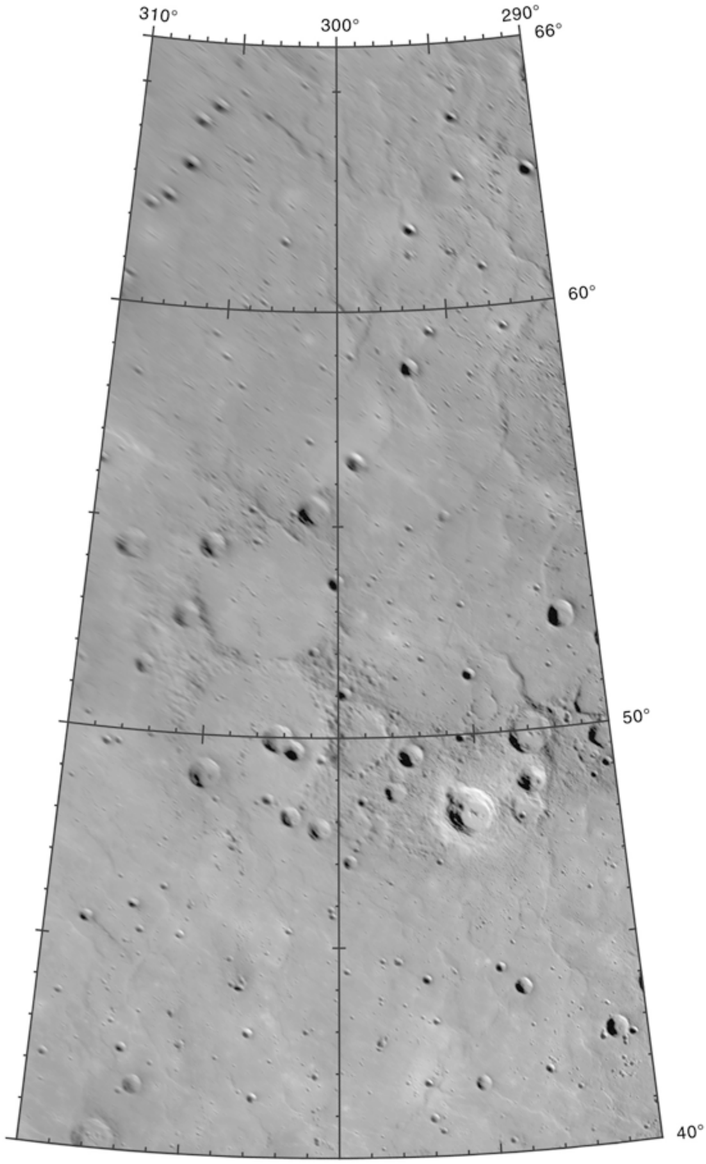


Map H-5-1: Hokusai Quadrangle

$(270° < \lambda < 290°, +40° < \phi < +66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf

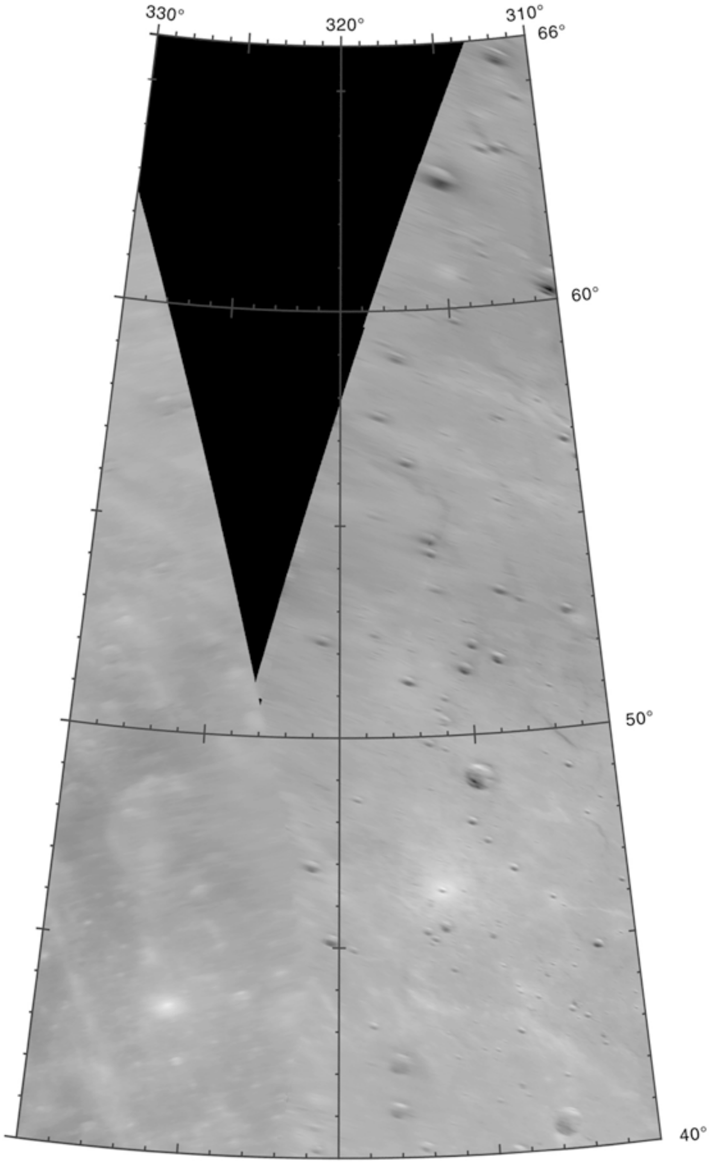


Map H-5-2: Hokusai Quadrangle

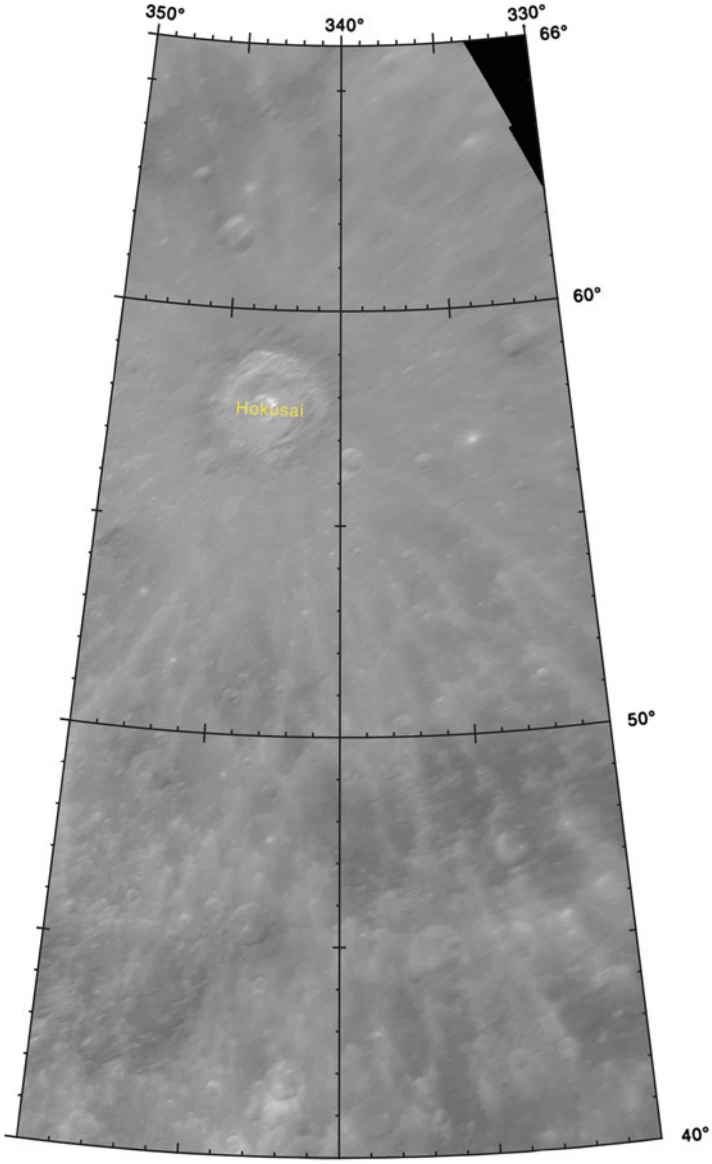
$(290° < \lambda < 310°,\ +40° < \phi < +66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf



Map H-5-3: Hokusai Quadrangle
$(310° < \lambda < 330°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-5.pdf

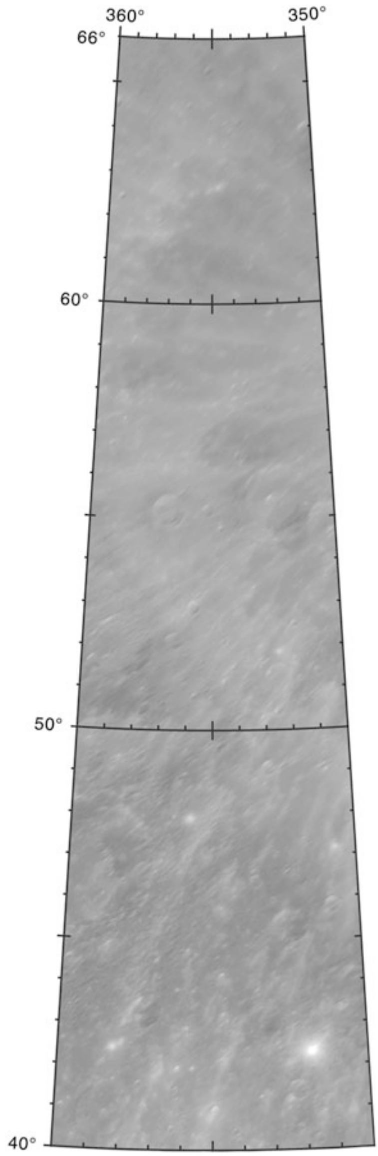


Map H-5-4: Hokusai Quadrangle

($330° < \lambda < 350°$, $+40° < \phi < +66°$)

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf



Map H-5-5: Hokusai Quadrangle
$(350° < \lambda < 360°, +40° < \phi < +66°)$
Courtesy of USGS Astrogeology Science Center
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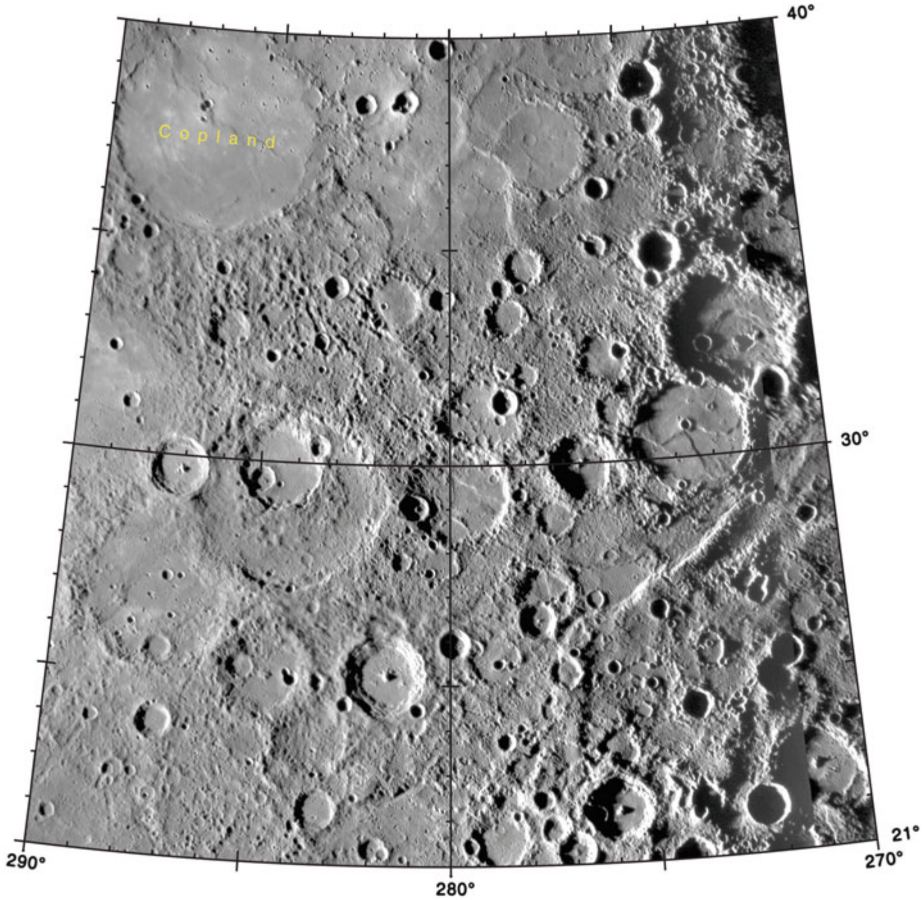
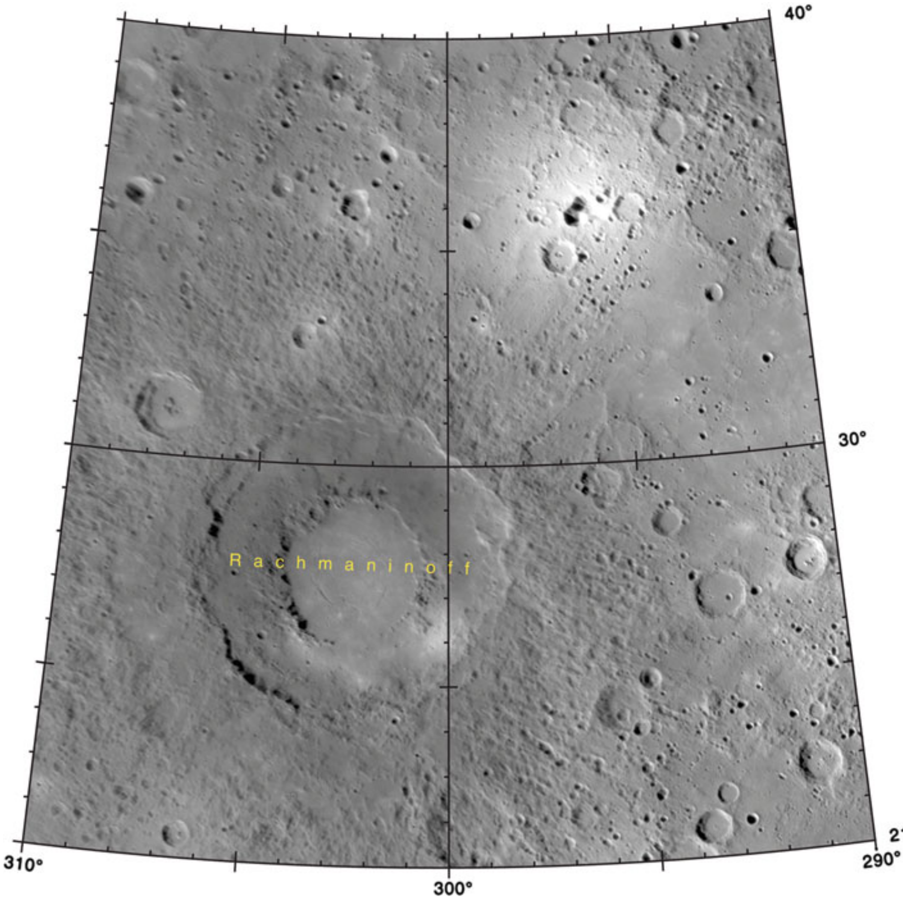


Map H-5-6: Hokusai Quadrangle

$(270° < \lambda < 290°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf

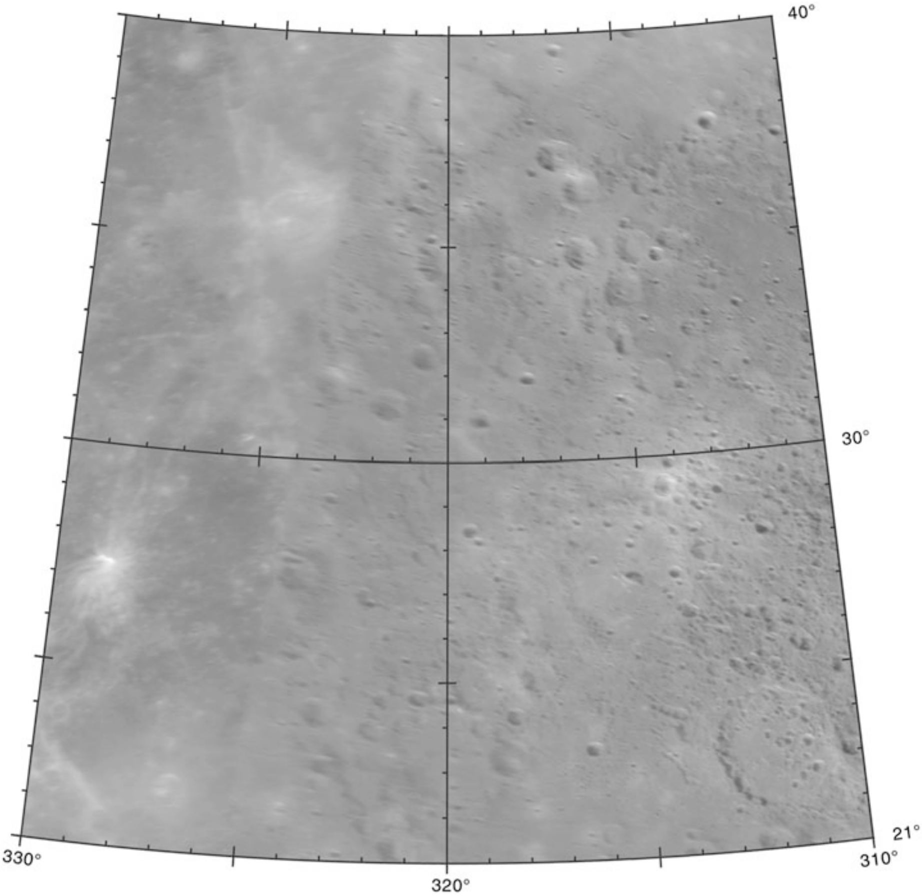


Map H-5-7: Hokusai Quadrangle

$(290^\circ < \lambda < 310^\circ, +21^\circ < \phi < +40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf

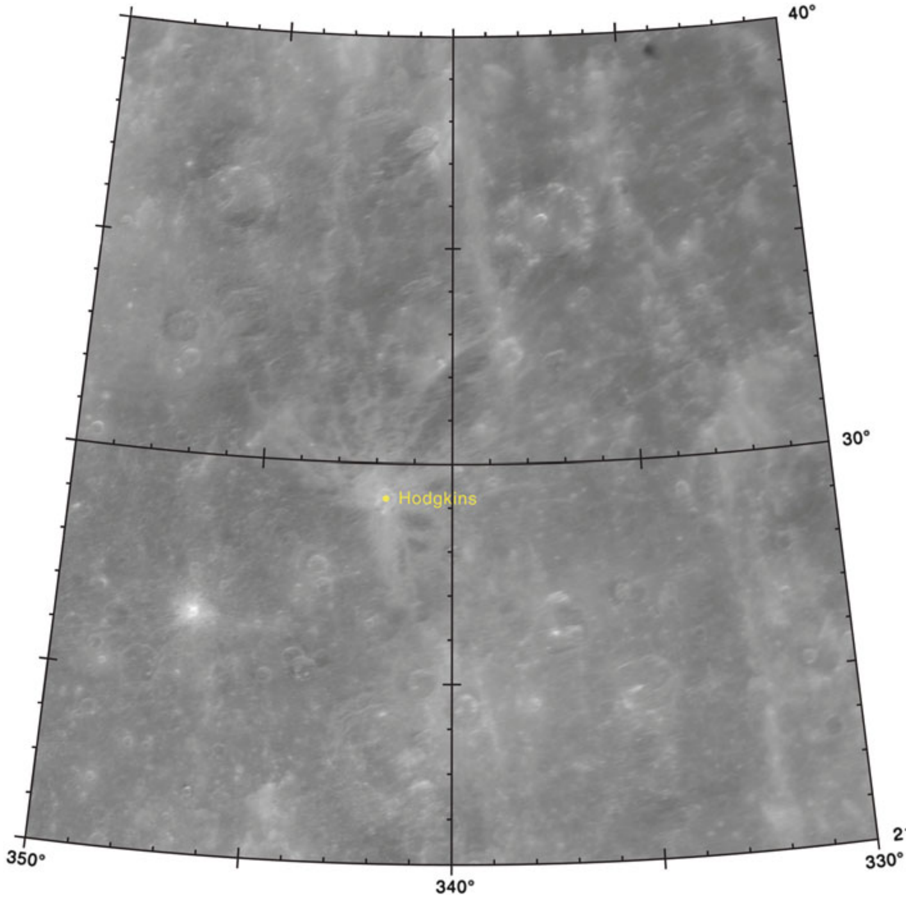


Map H-5-8: Hokusai Quadrangle

$(310^\circ < \lambda < 330^\circ, +21^\circ < \phi < +40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf

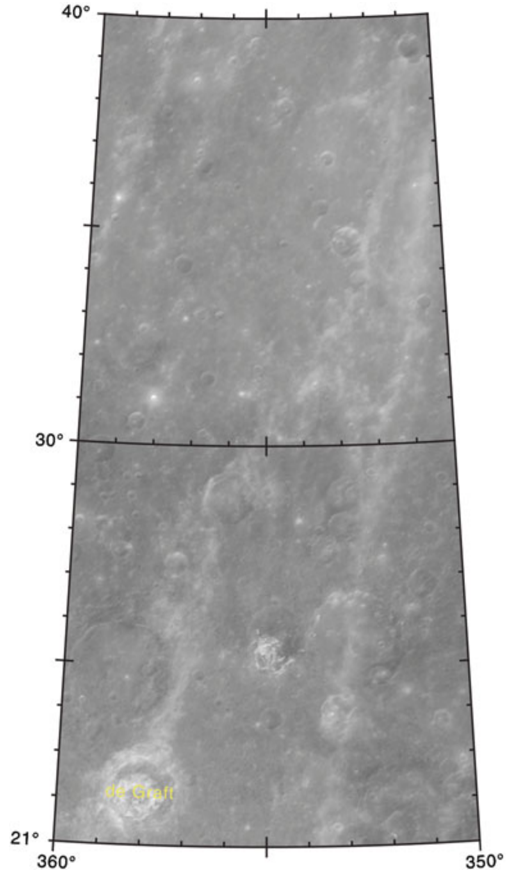


Map H-5-9: Hokusai Quadrangle

$(330° < \lambda < 350°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-5.pdf



Map H-5-10: Hokusai Quadrangle

$(350° < \lambda < 360°, +21° < \phi < +40°)$

Courtesy of USGS Astrogeology Science Center

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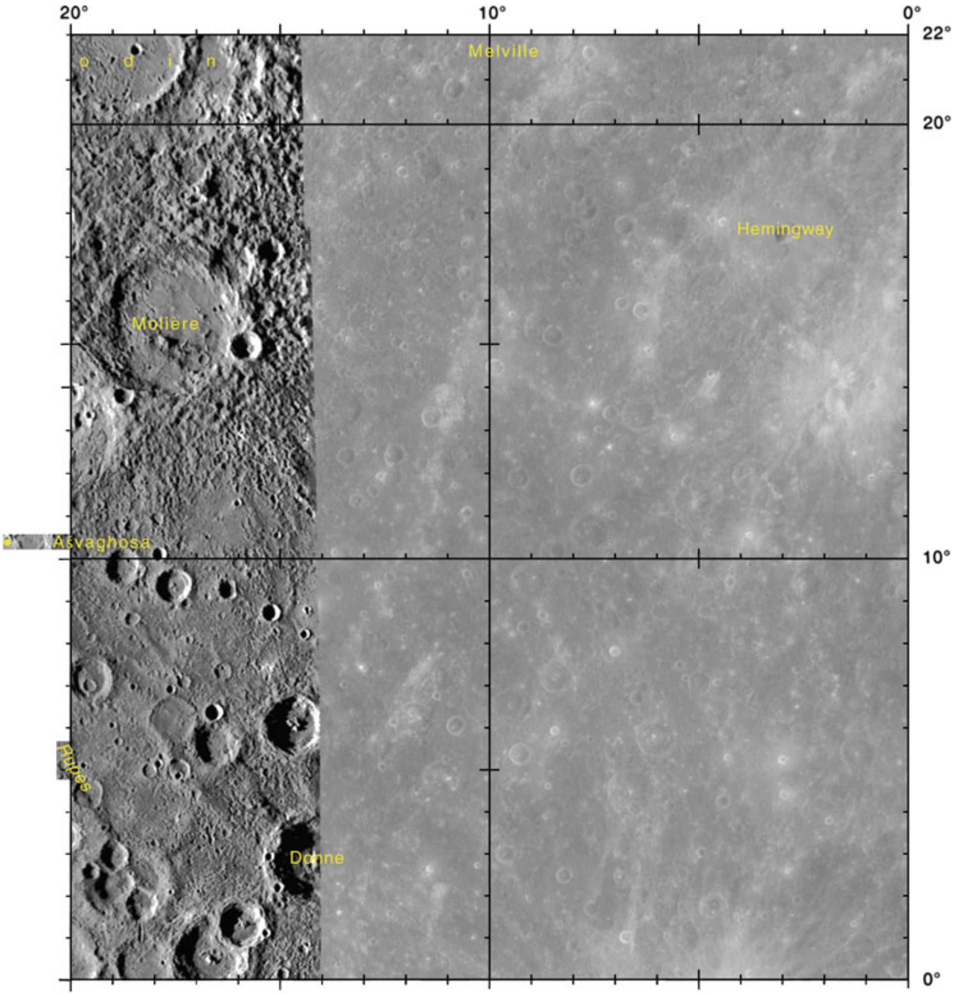
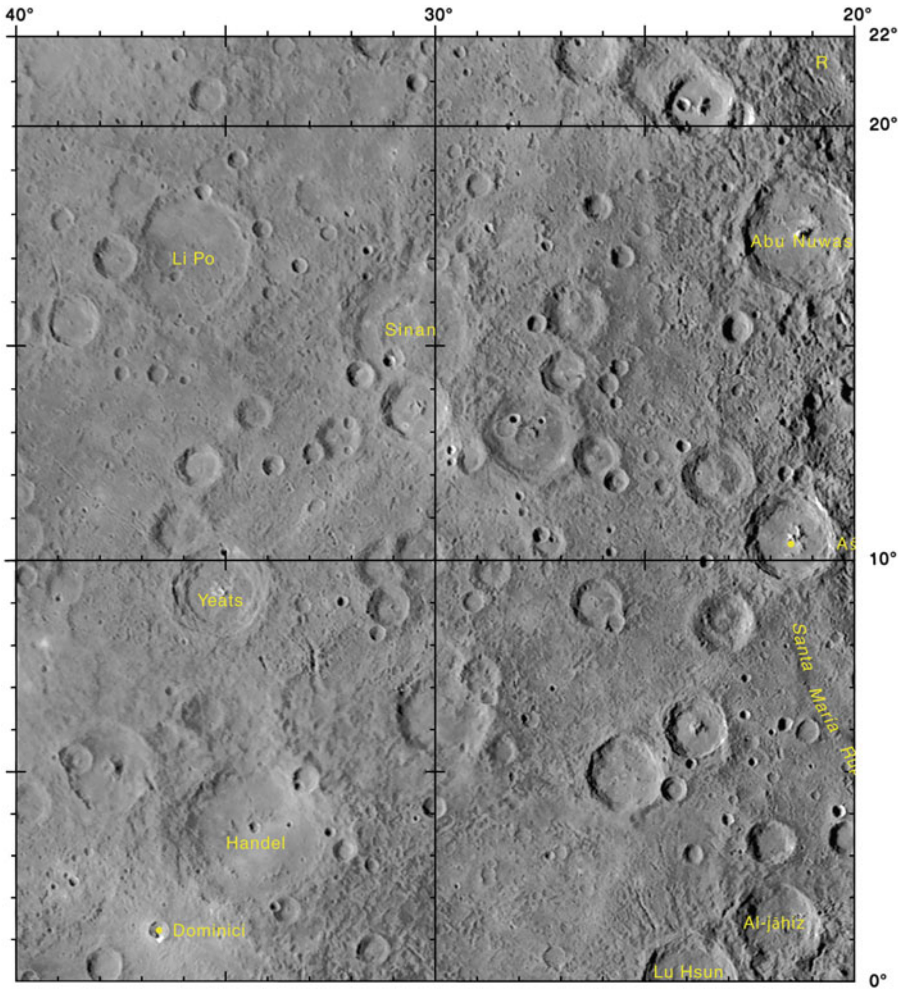


Map H-6-1: Kuiper Quadrangle

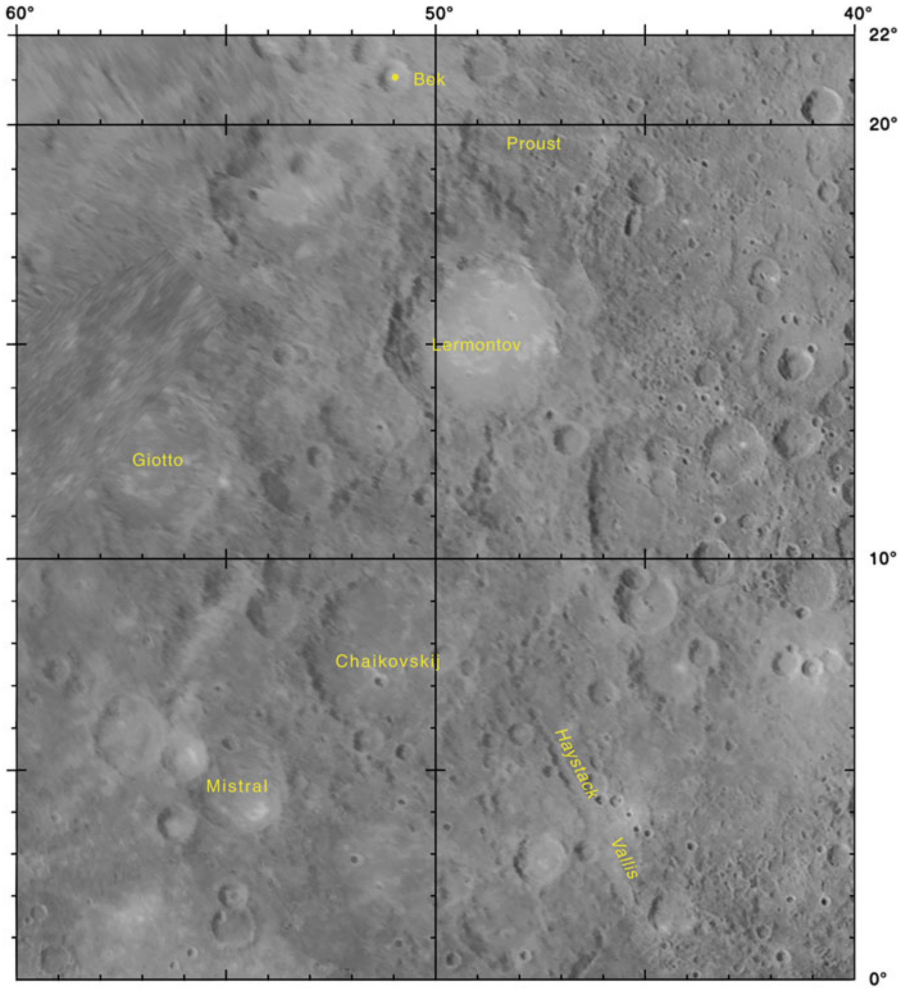
$(0^\circ < \lambda < 20^\circ,\ 0^\circ < \phi < +22^\circ)$

Courtesy of USGS Astrogeology Science Center

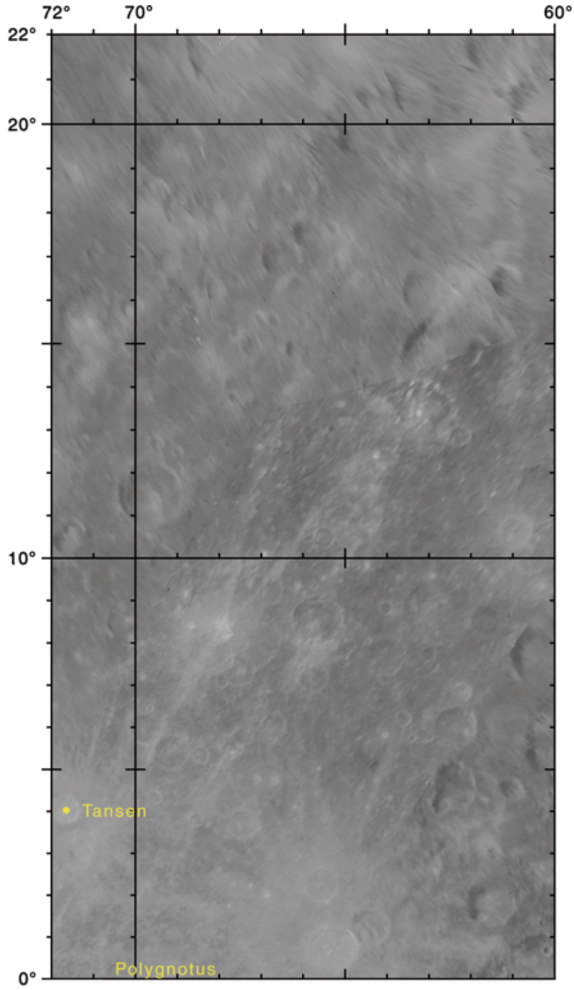
http://planetarynames.wr.usgs.gov/images/h-6.pdf



Map H-6-2: Kuiper Quadrangle
$(20^\circ < \lambda < 40^\circ,\ 0^\circ < \phi < +22^\circ)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-6.pdf



Map H-6-3: Kuiper Quadrangle
($40° < \lambda < 60°$, $0° < \phi < +22°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-6.pdf)

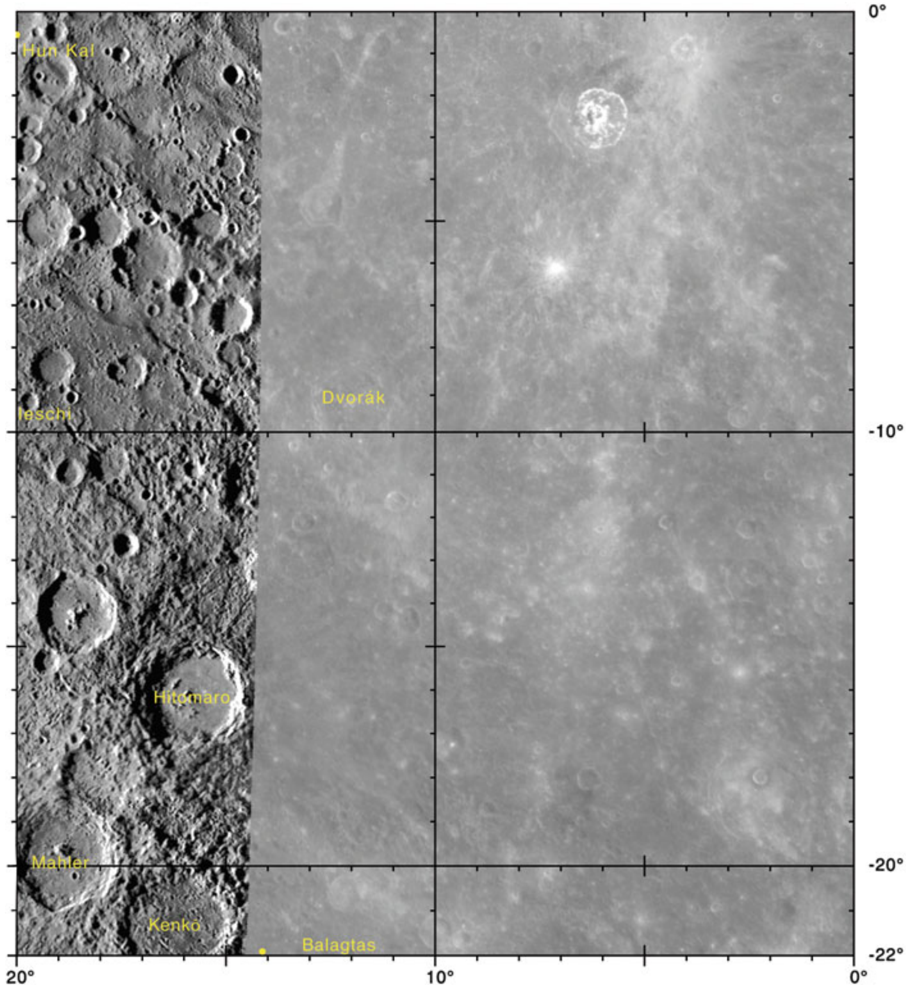


Map H-6-4: Kuiper Quadrangle

$(60^\circ < \lambda < 72^\circ,\ 0^\circ < \phi < +22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-6.pdf

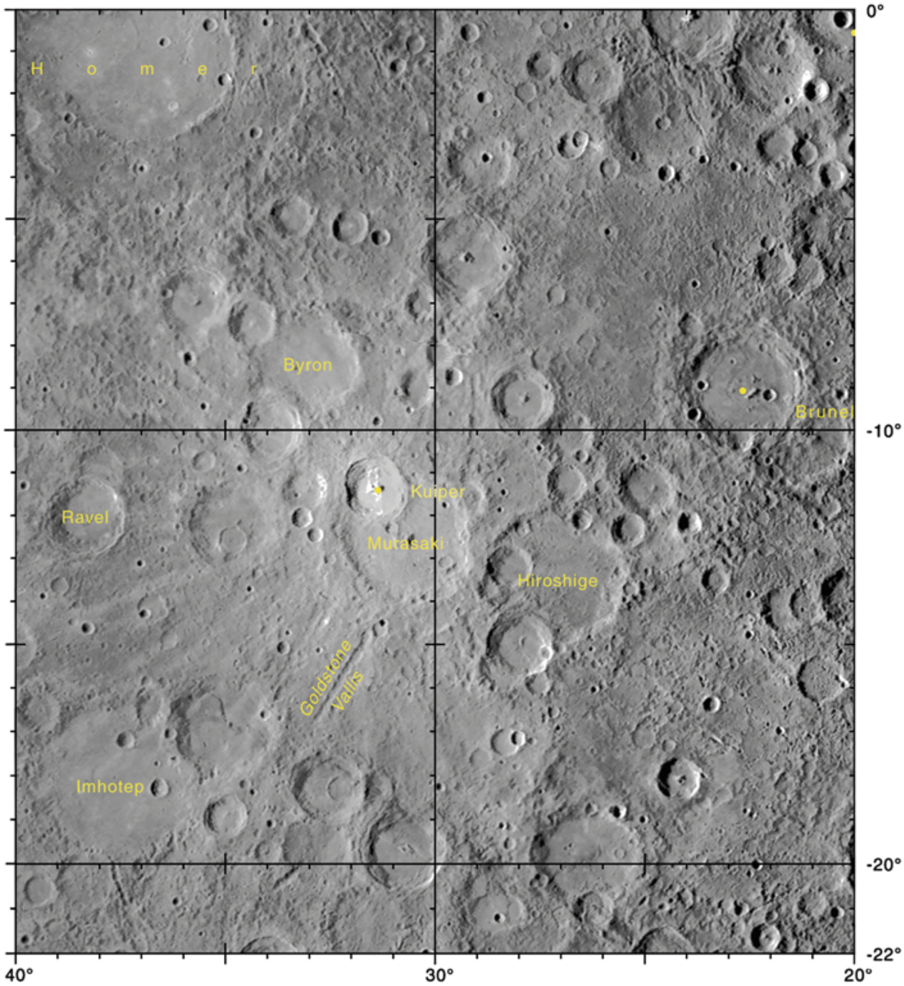


Map H-6-5: Kuiper Quadrangle

$(0° < \lambda < 20°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-6.pdf

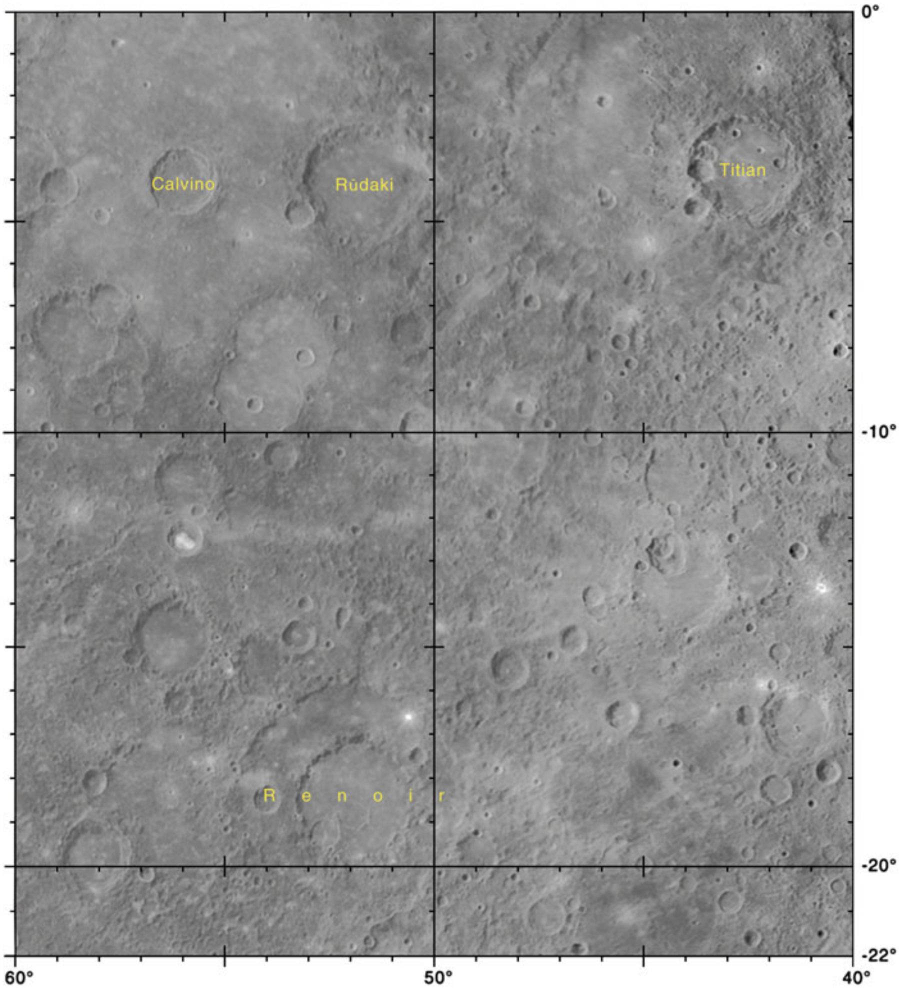


Map H-6-6: Kuiper Quadrangle

$(20° < \lambda < 40°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-6.pdf

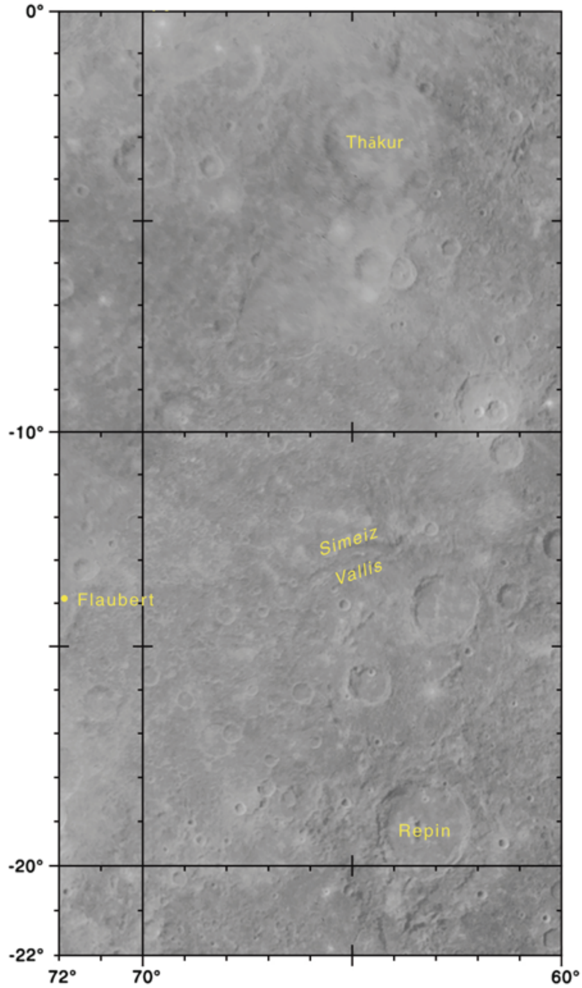


Map H-6-7: Kuiper Quadrangle

$(40° < \lambda < 60°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-6.pdf

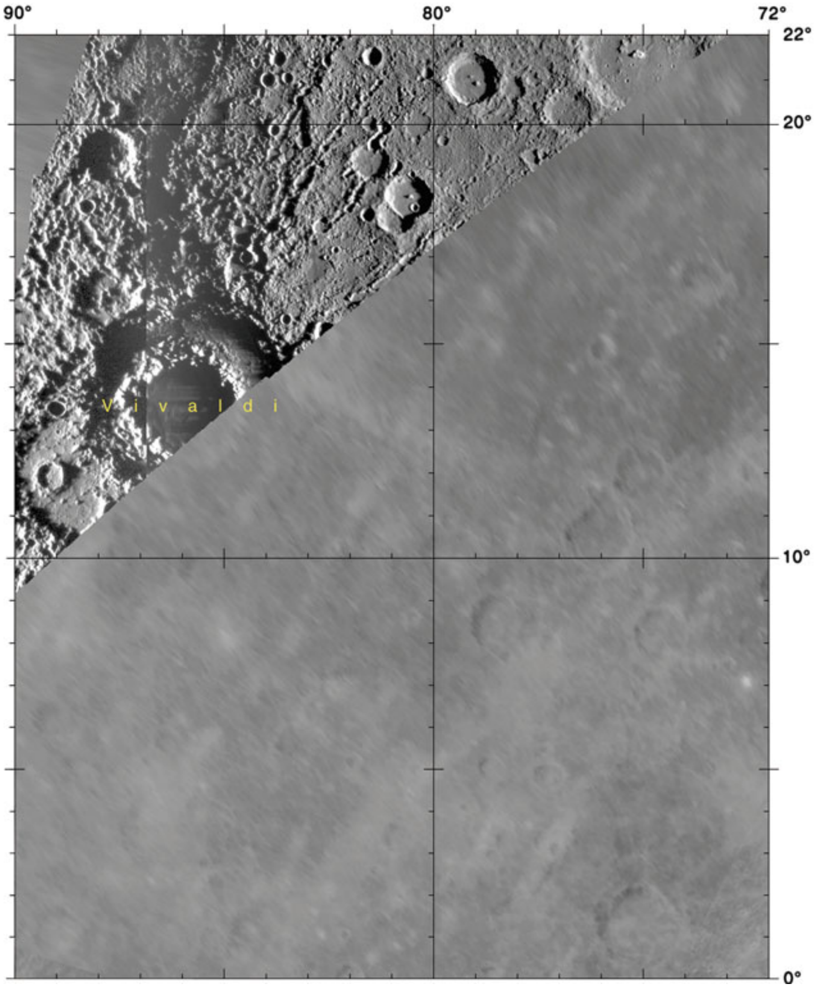


Map H-6-8: Kuiper Quadrangle

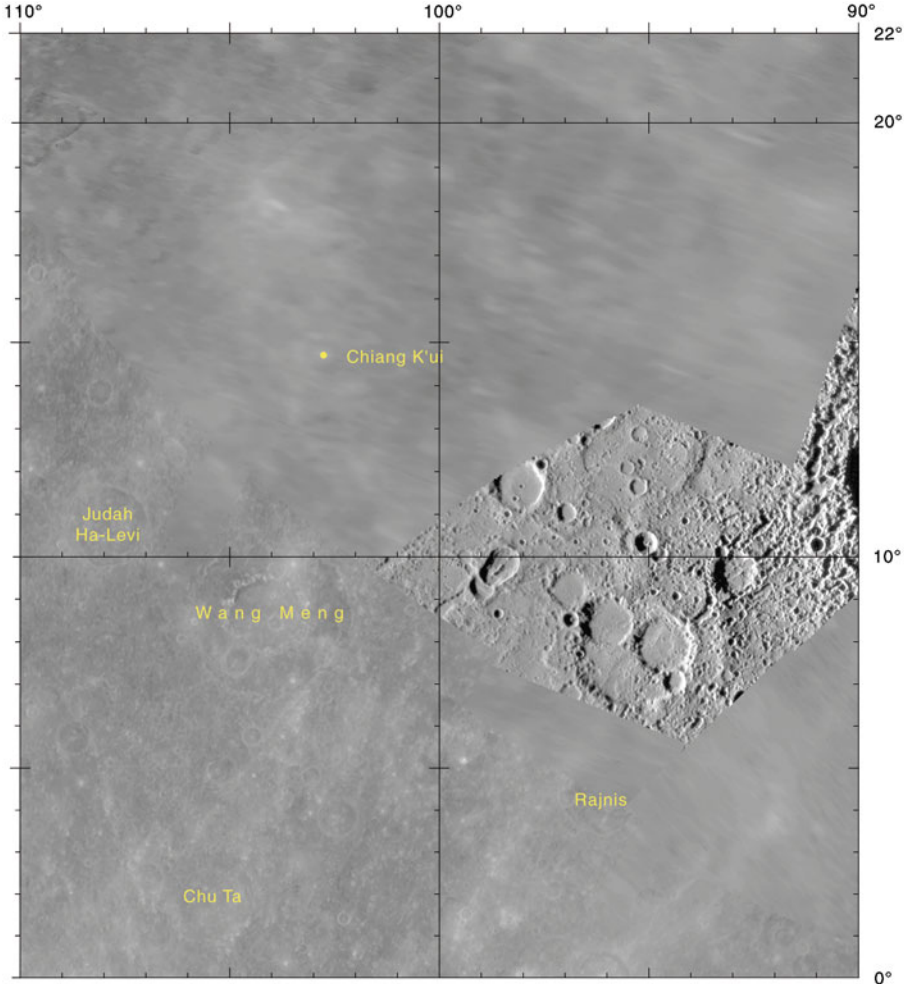
$(60^\circ < \lambda < 72^\circ,\ 0^\circ > \phi > -22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-6.pdf



Map H-7-1: Beethoven Quadrangle
$(72^\circ < \lambda < 90^\circ,\ 0^\circ < \phi < +22^\circ)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-7.pdf

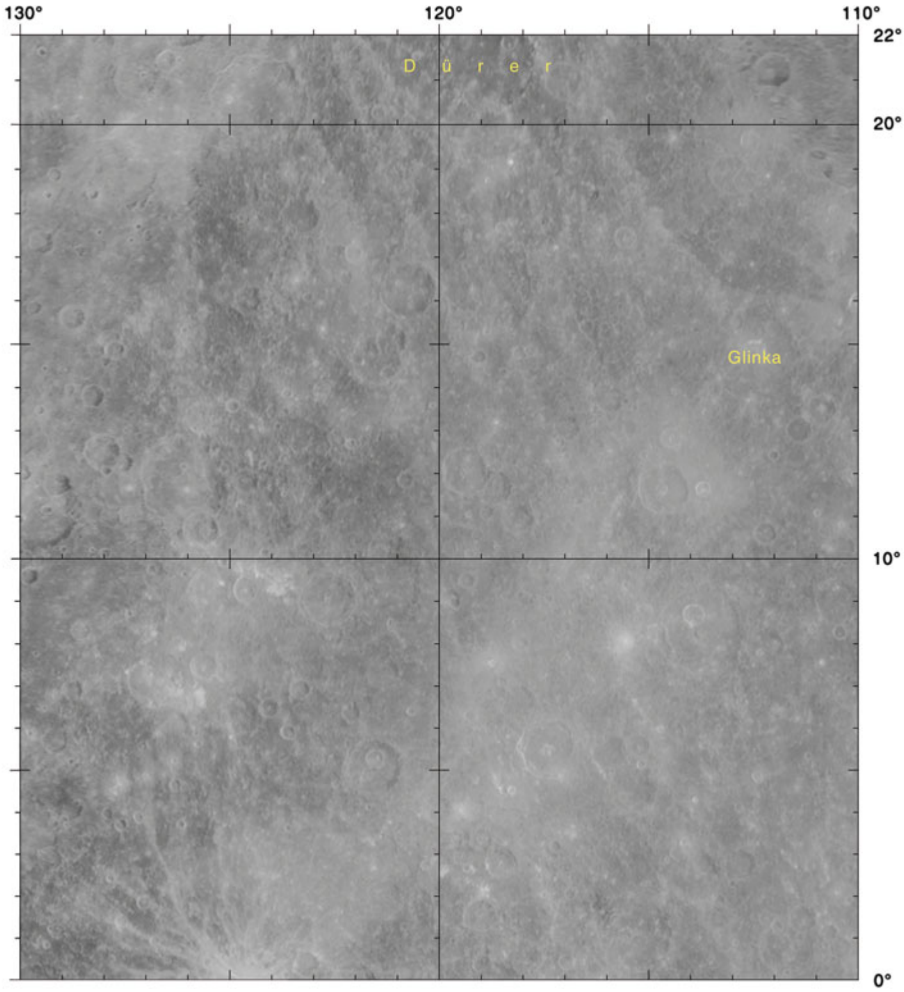


Map H-7-2: Beethoven Quadrangle

$(90^\circ < \lambda < 110^\circ,\ 0^\circ < \phi < +22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-7.pdf

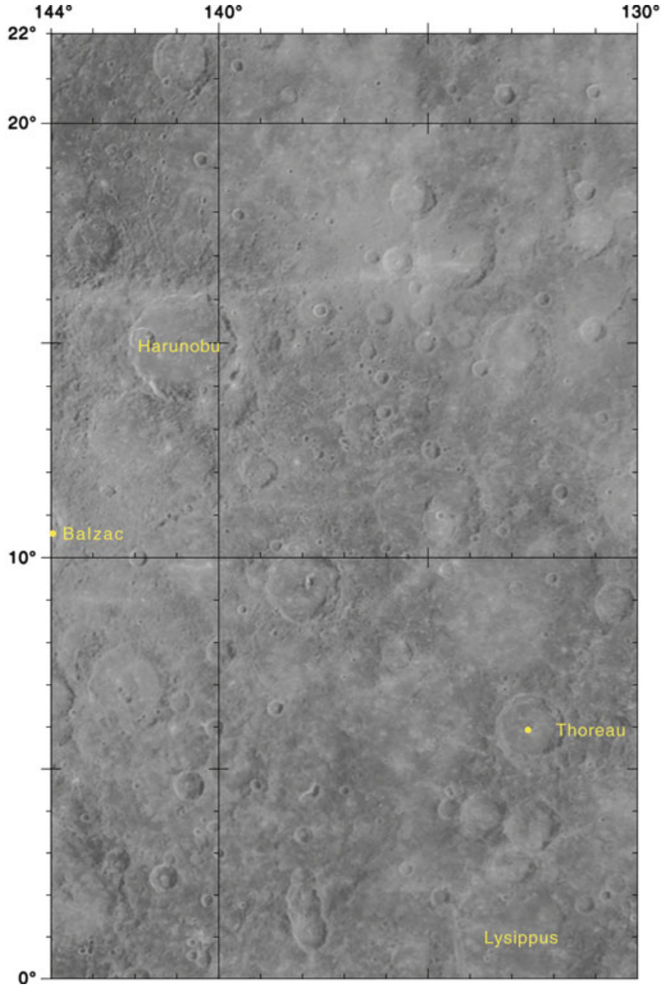


Map H-7-3: Beethoven Quadrangle

$(110° < \lambda < 130°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-7.pdf

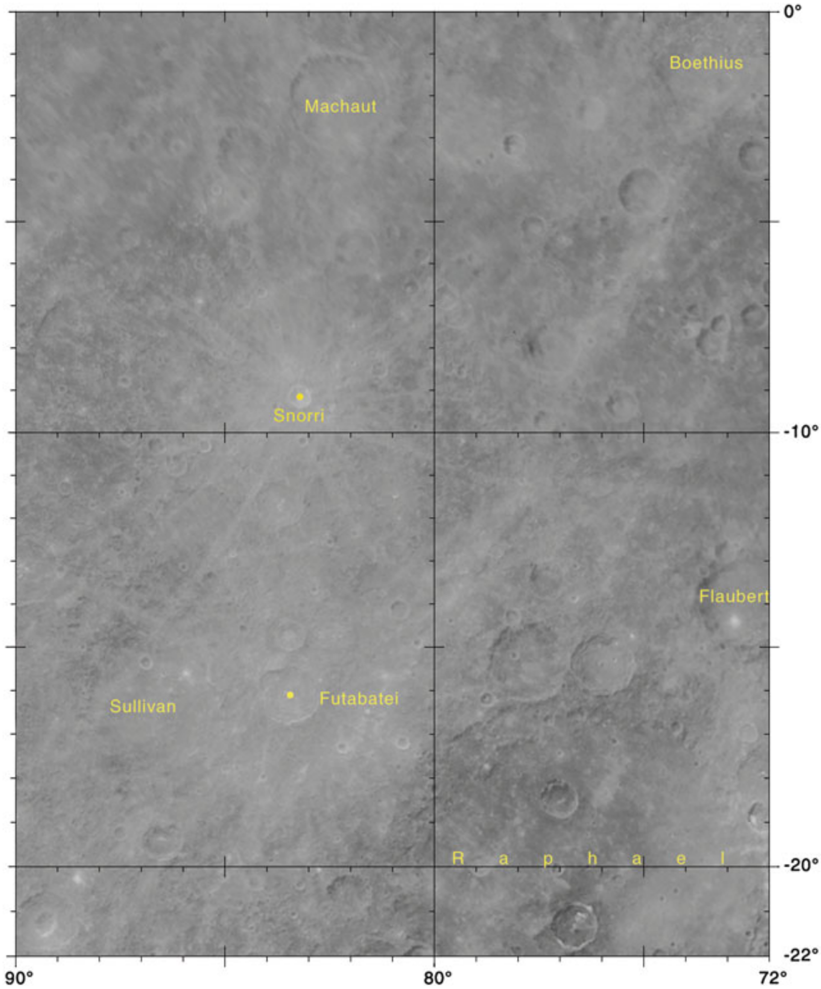


Map H-7-4: Beethoven Quadrangle

$(130° < \lambda < 144°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-7.pdf



Map H-7-5: Beethoven Quadrangle

$(72° < \lambda < 90°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

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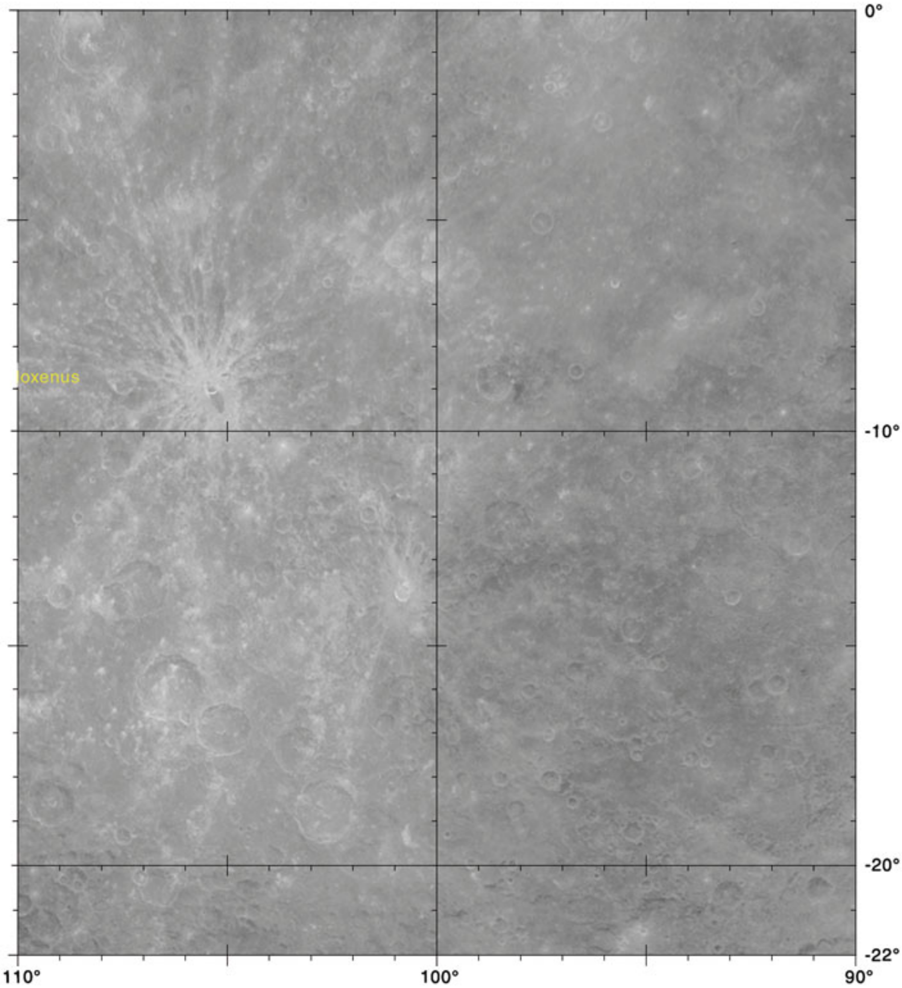

Map H-7-6: Beethoven Quadrangle
$(90° < \lambda < 110°,\ 0° > \phi > -22°)$
Courtesy of USGS Astrogeology Science Center
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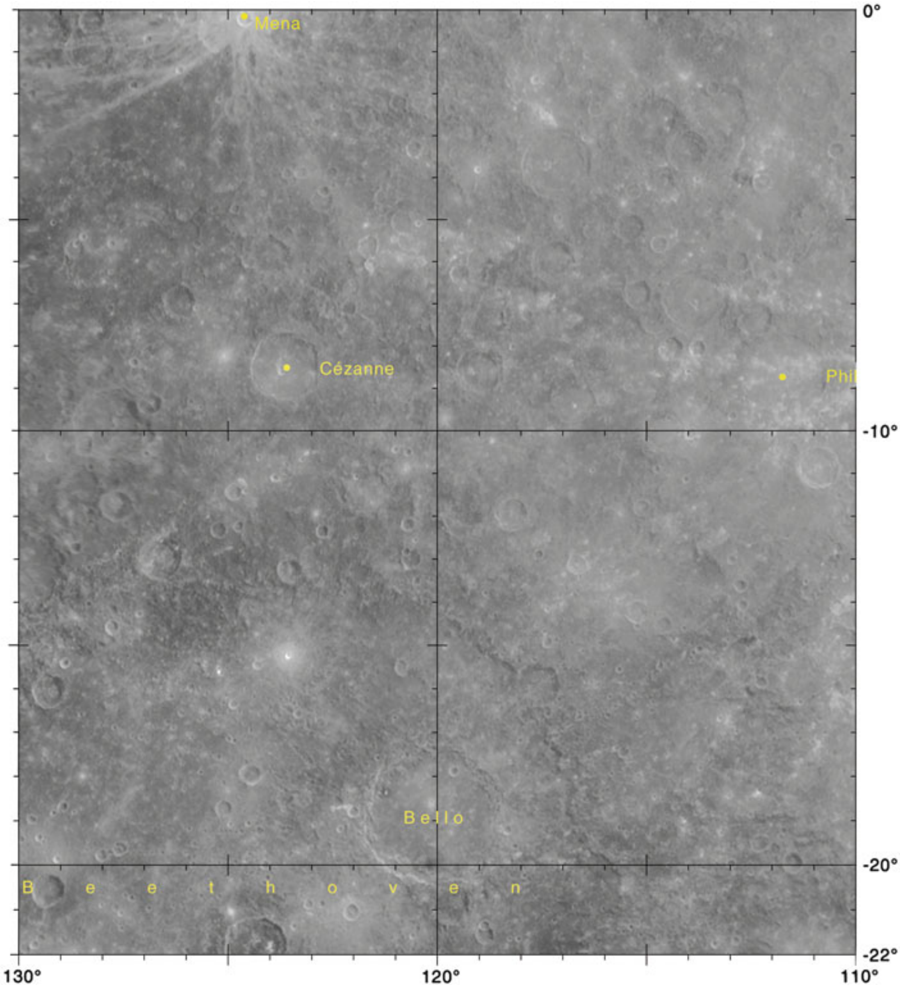
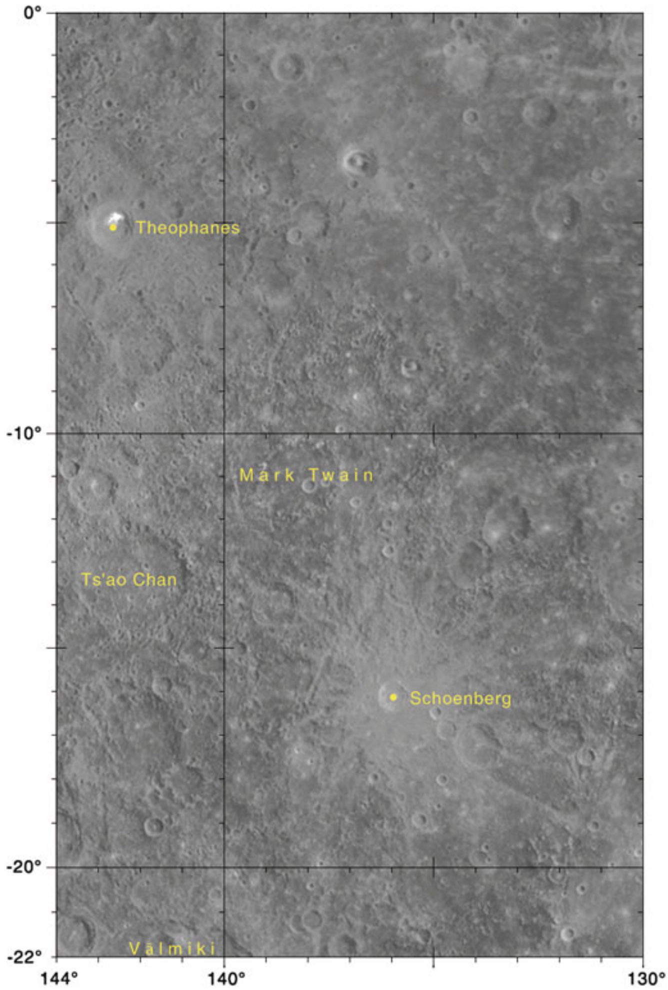


Map H-7-7: Beethoven Quadrangle

$(110^\circ < \lambda < 130^\circ,\ 0^\circ > \phi > -22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-7.pdf



Map H-7-8: Beethoven Quadrangle
$(130° < \lambda < 144°,\ 0° > \phi > -22°)$
Courtesy of USGS Astrogeology Science Center
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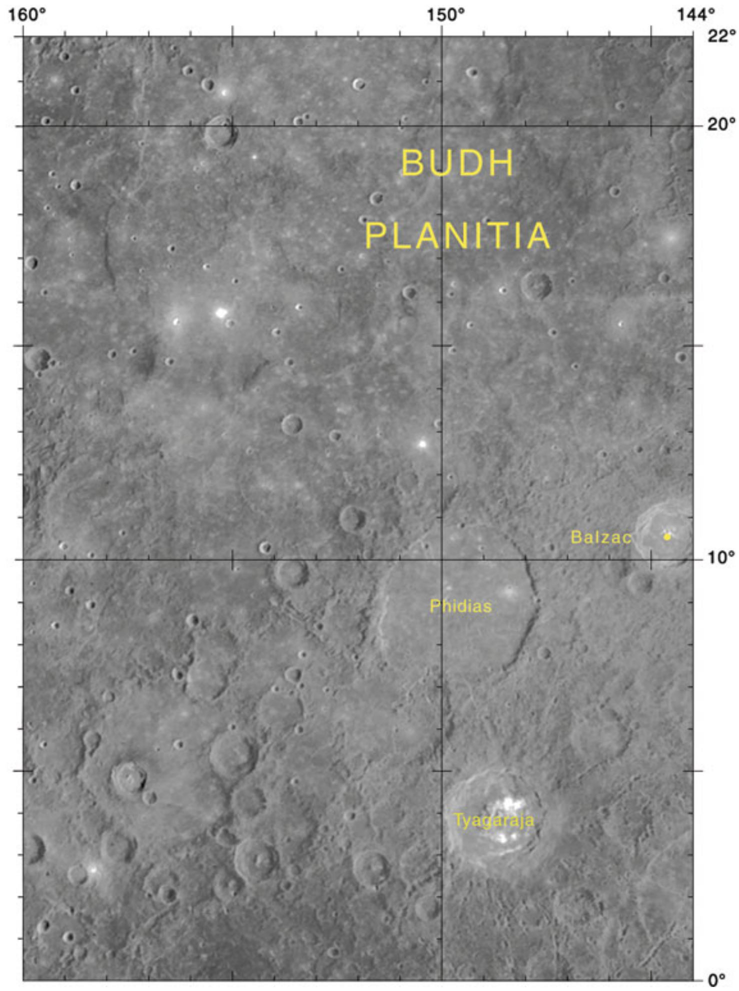
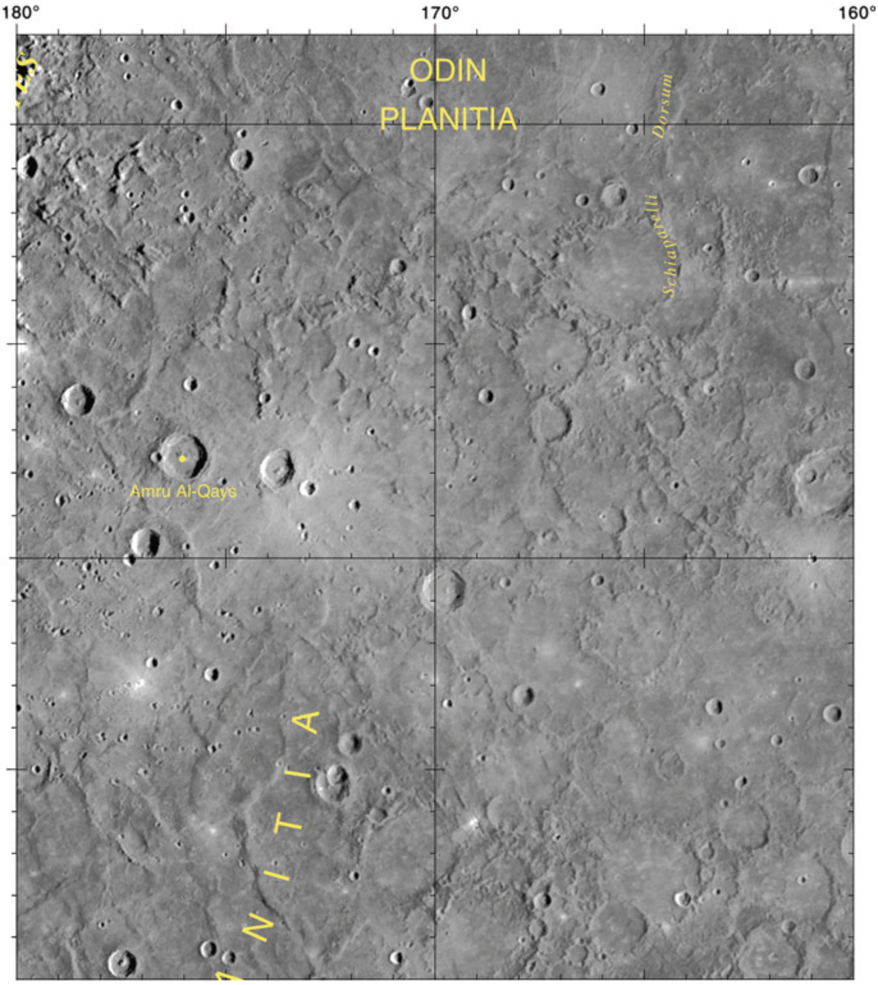
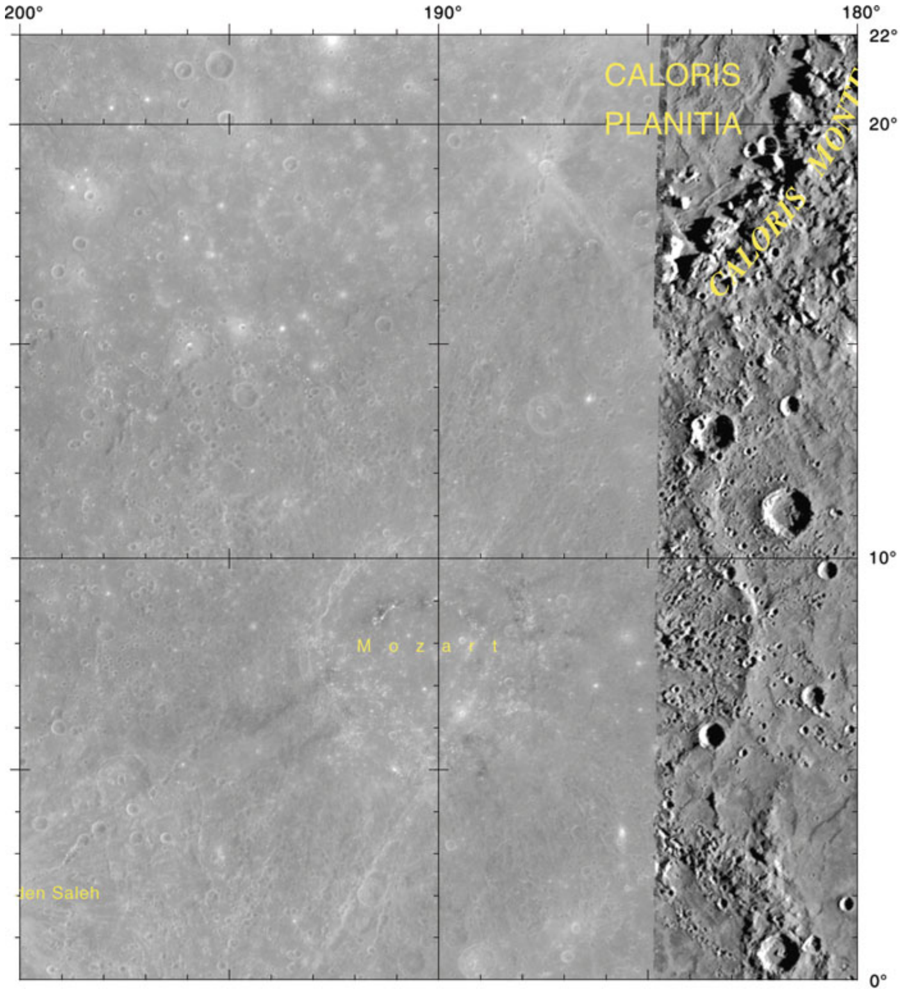


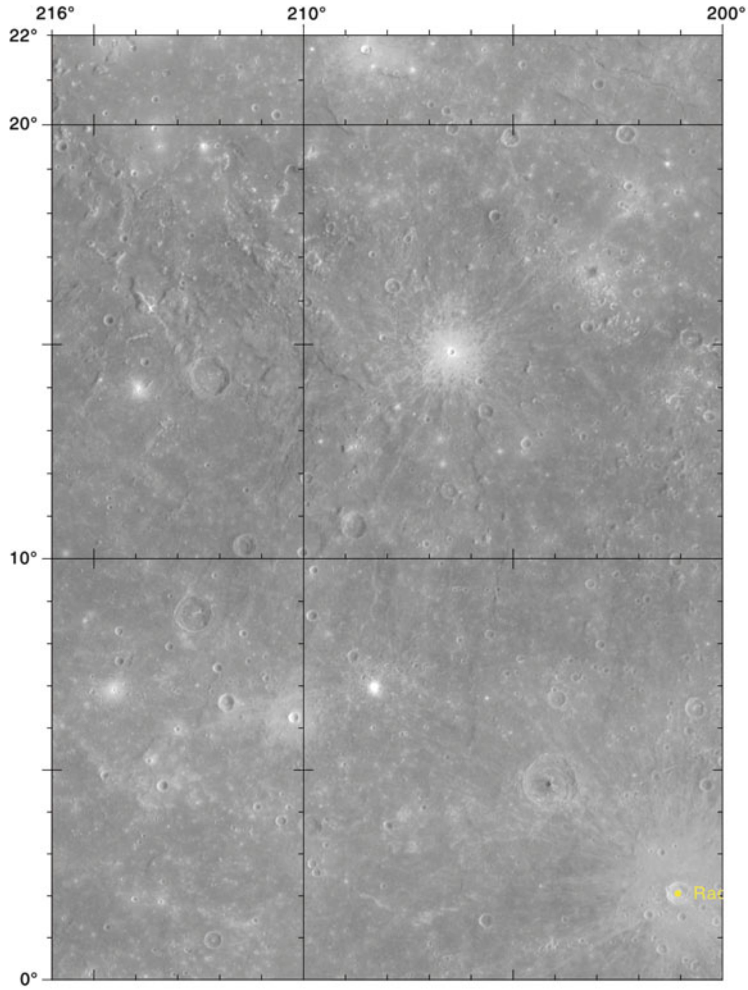
Map H-8-1: Tolstoj Quadrangle
$(144° < \lambda < 160°,\ 0° < \phi < +22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-8.pdf



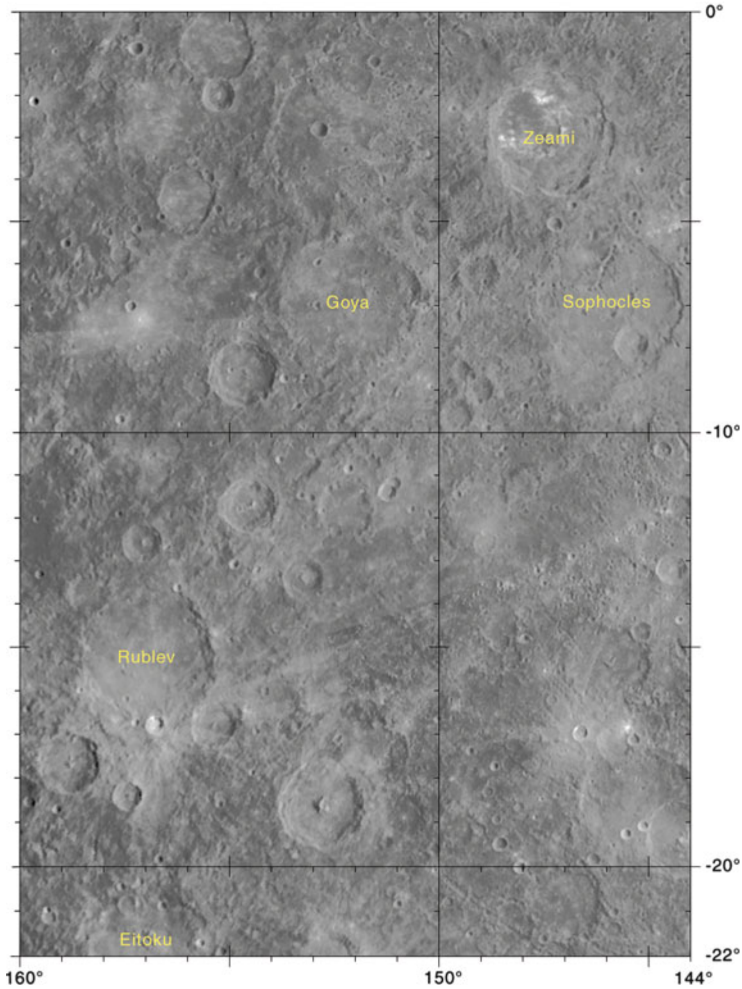
Map H-8-2: Tolstoj Quadrangle
$(160° < \lambda < 180°,\ 0° < \phi < +22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-8.pdf



Map H-8-3: Tolstoj Quadrangle
$(180° < \lambda < 200°, 0° < \phi < +22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-8.pdf



Map H-8-4: Tolstoj Quadrangle
$(200° < \lambda < 216°,\ 0° < \phi < +22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-8.pdf



Map H-8-5: Tolstoj Quadrangle
$(144° < \lambda < 160°,\ 0° > \phi > -22°)$
Courtesy of USGS Astrogeology Science Center
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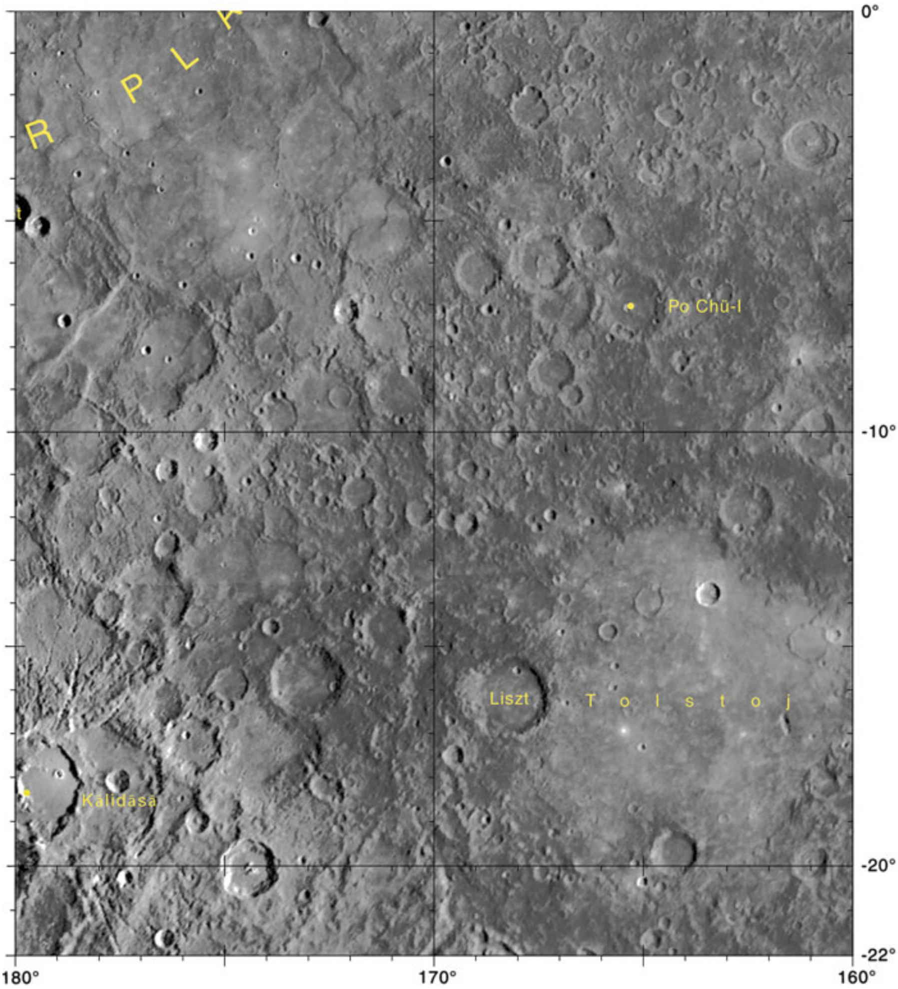
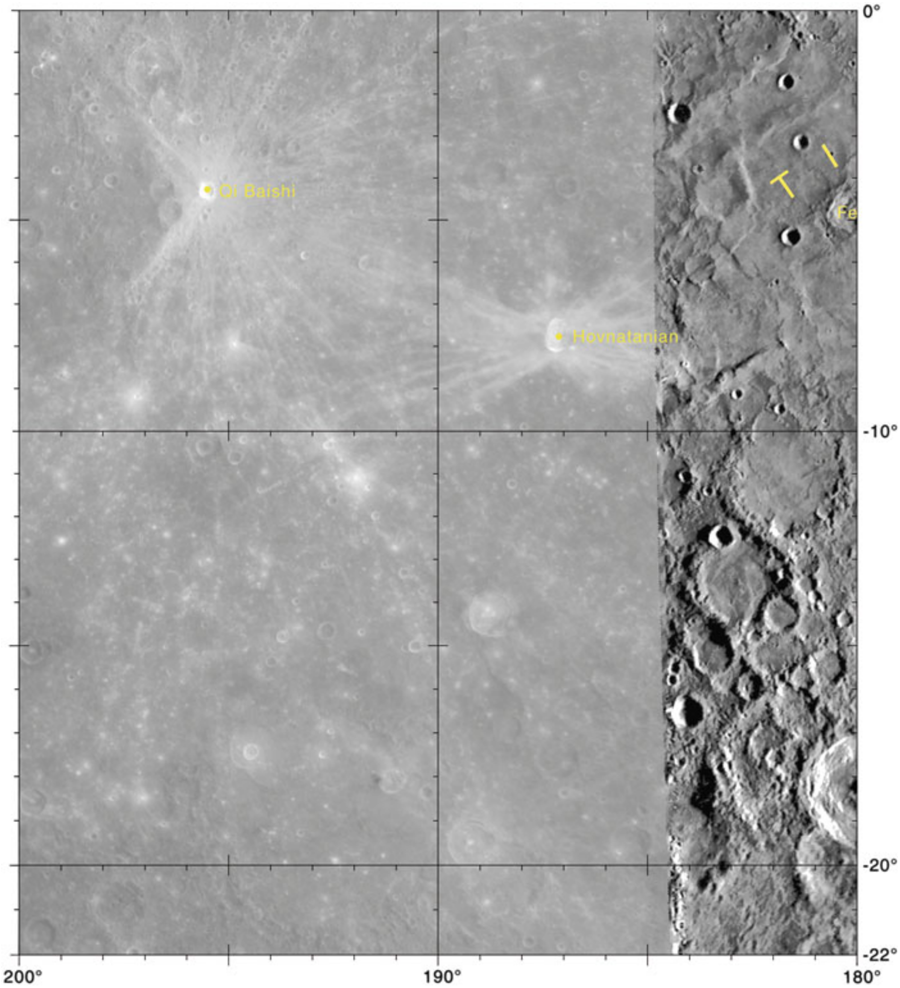


Map H-8-6: Tolstoj Quadrangle

$(160^\circ < \lambda < 180^\circ,\ 0^\circ > \phi > -22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-8.pdf



Map H-8-7: Tolstoj Quadrangle
$(180^\circ < \lambda < 200^\circ,\ 0^\circ > \phi > -22^\circ)$
Courtesy of USGS Astrogeology Science Center
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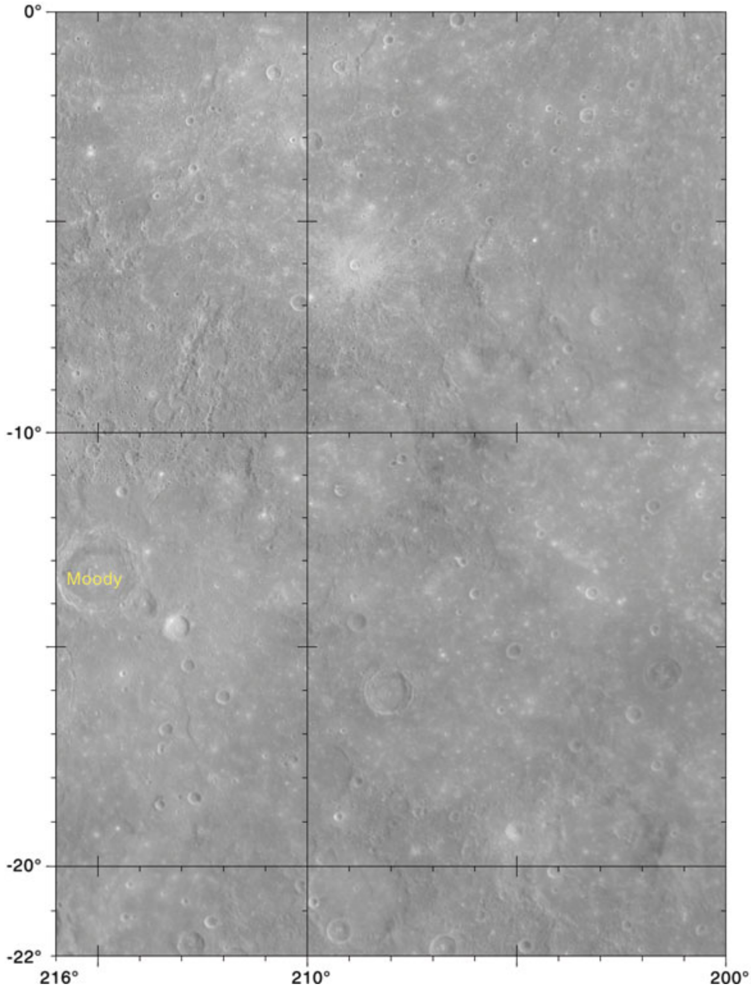
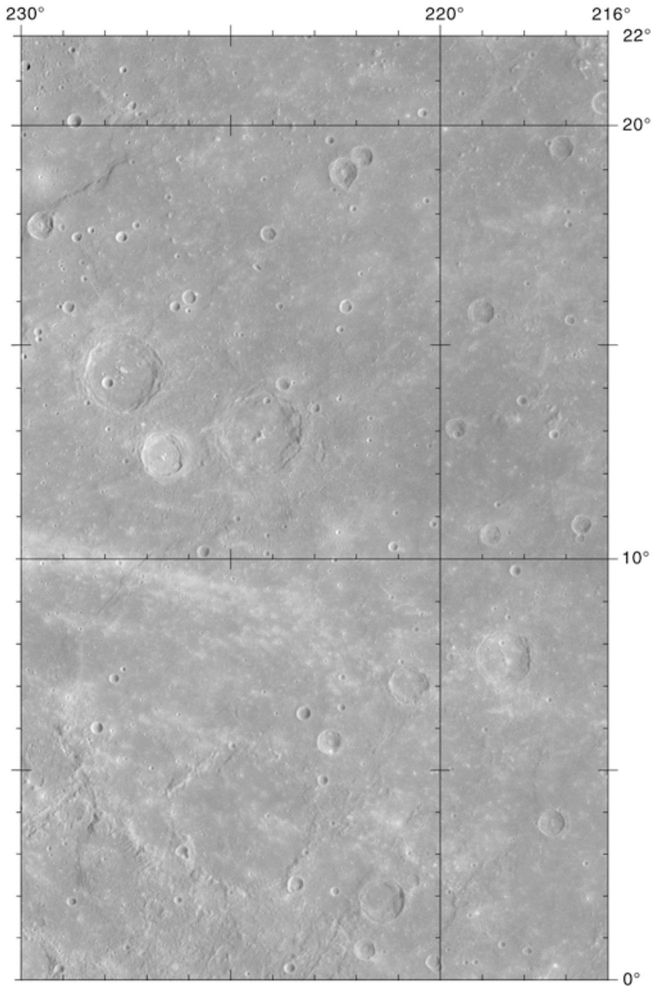


Map H-8-8: Tolstoj Quadrangle

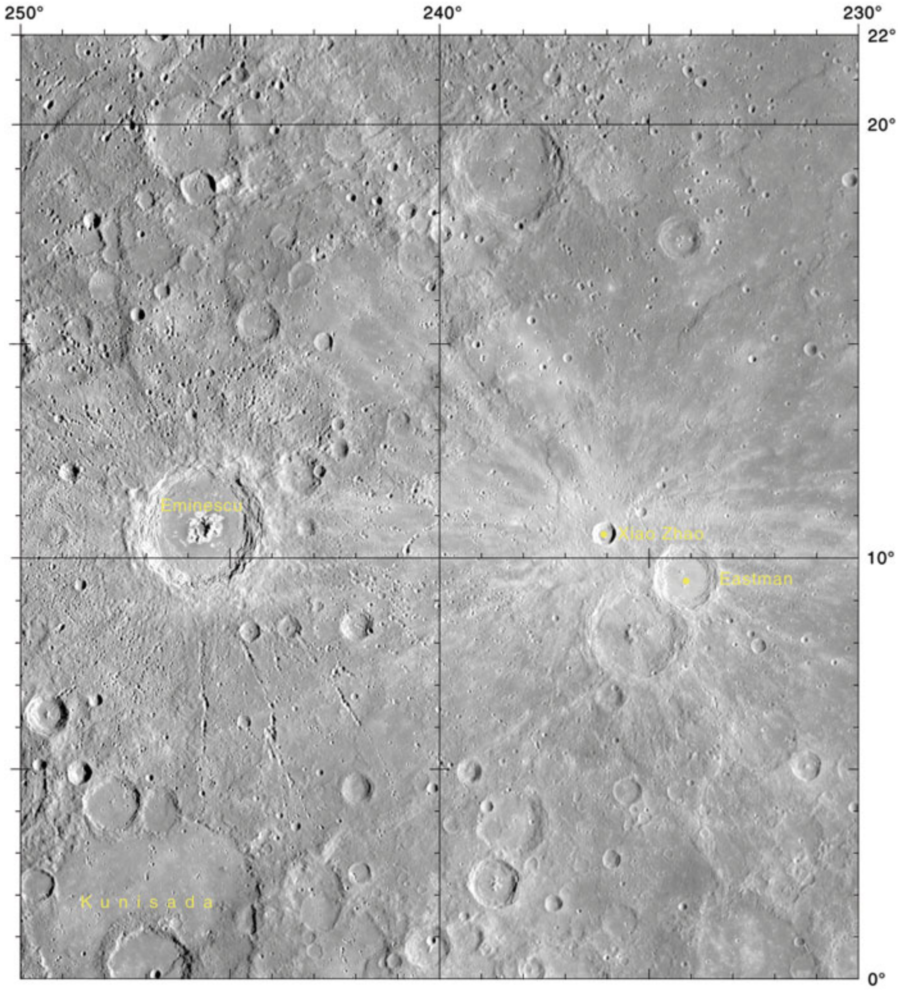
$(200° < \lambda < 216°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-8.pdf



Map H-9-1: Eminescu Quadrangle
$(216° < \lambda < 230°,\ 0° < \phi < +22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-9.pdf

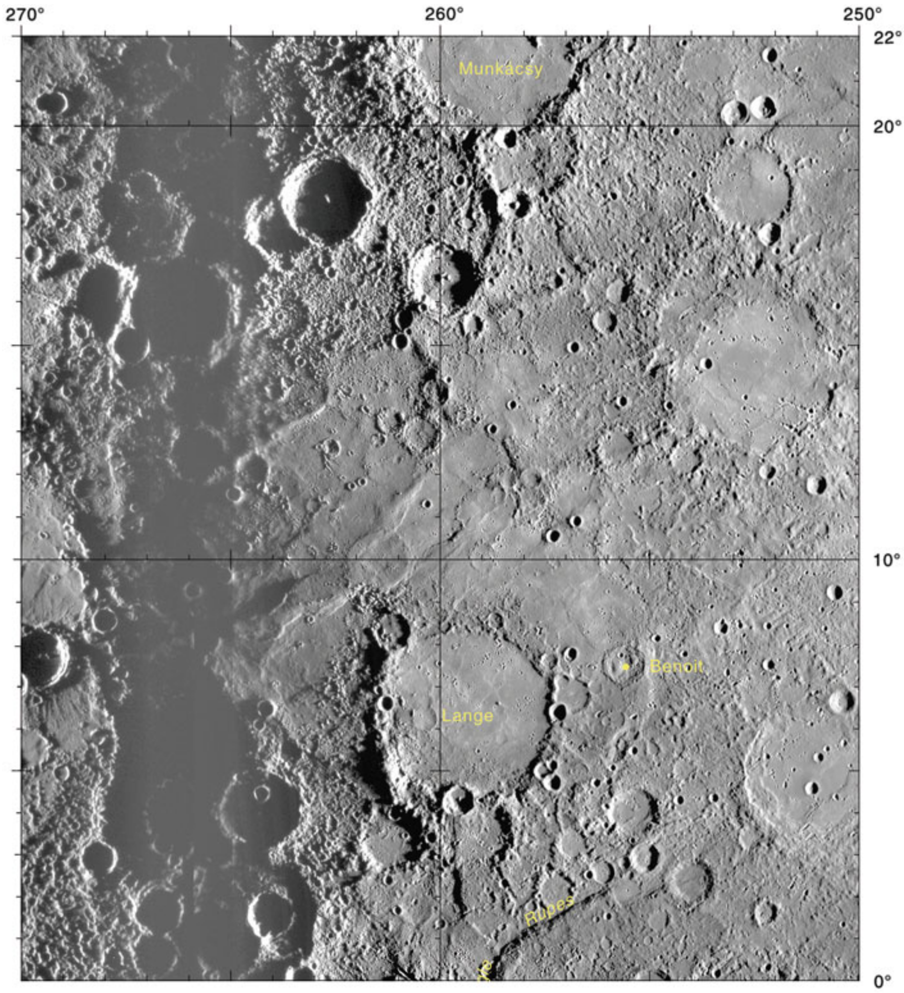


Map H-9-2: Eminescu Quadrangle

$(230° < \lambda < 250°, 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

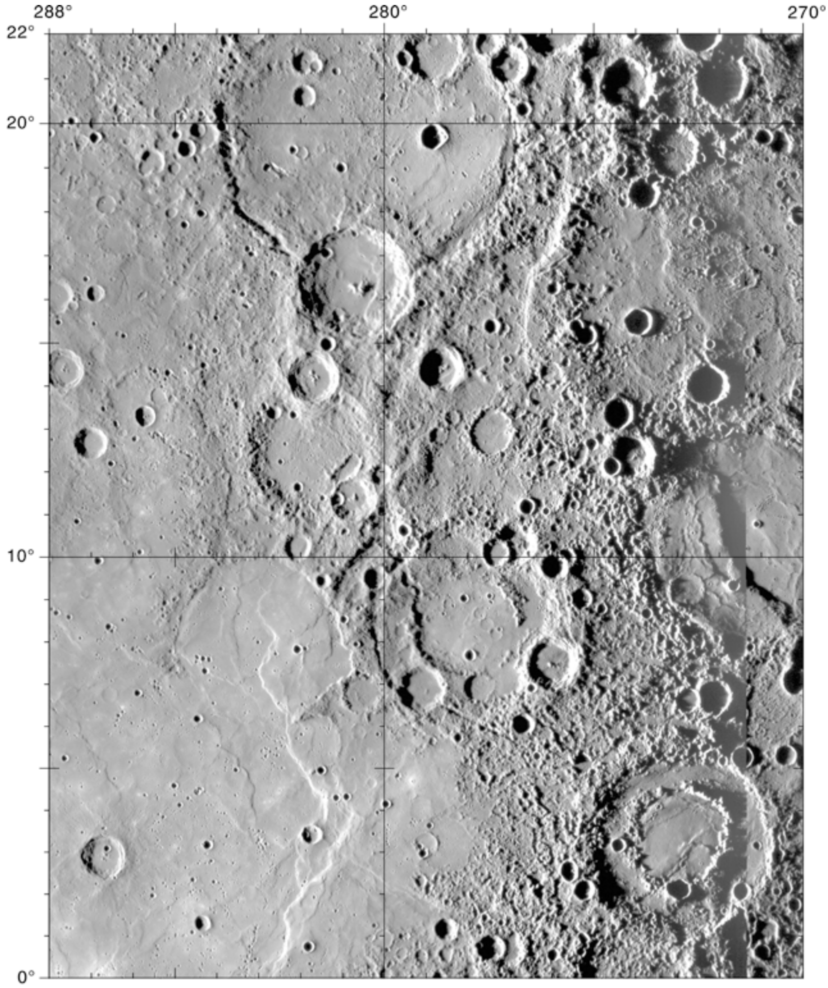


Map H-9-3: Eminescu Quadrangle

$(250° < \lambda < 270°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

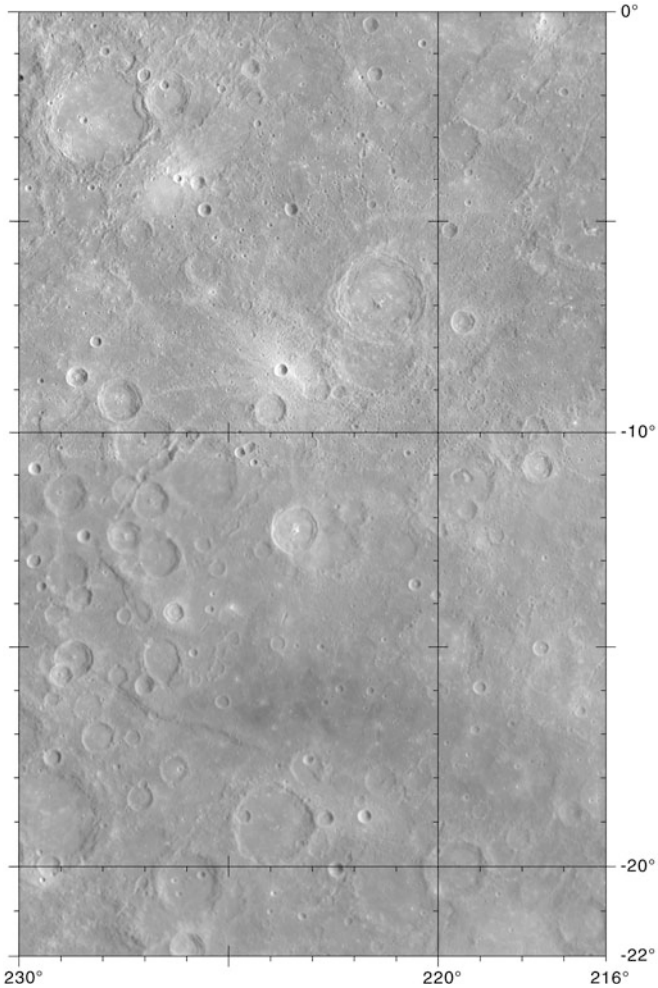


Map H-9-4: Eminescu Quadrangle

$(270° < \lambda < 288°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

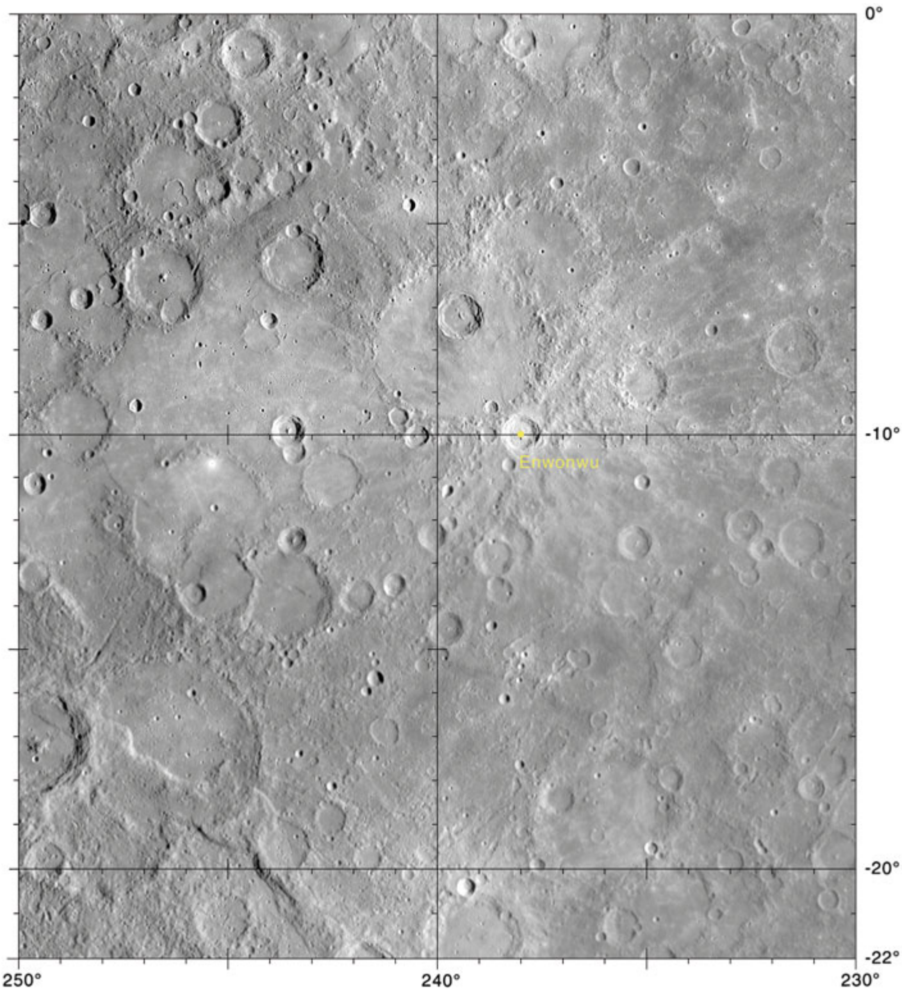


Map H-9-5: Eminescu Quadrangle

$(216^\circ < \lambda < 230^\circ,\ 0^\circ > \phi > -22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

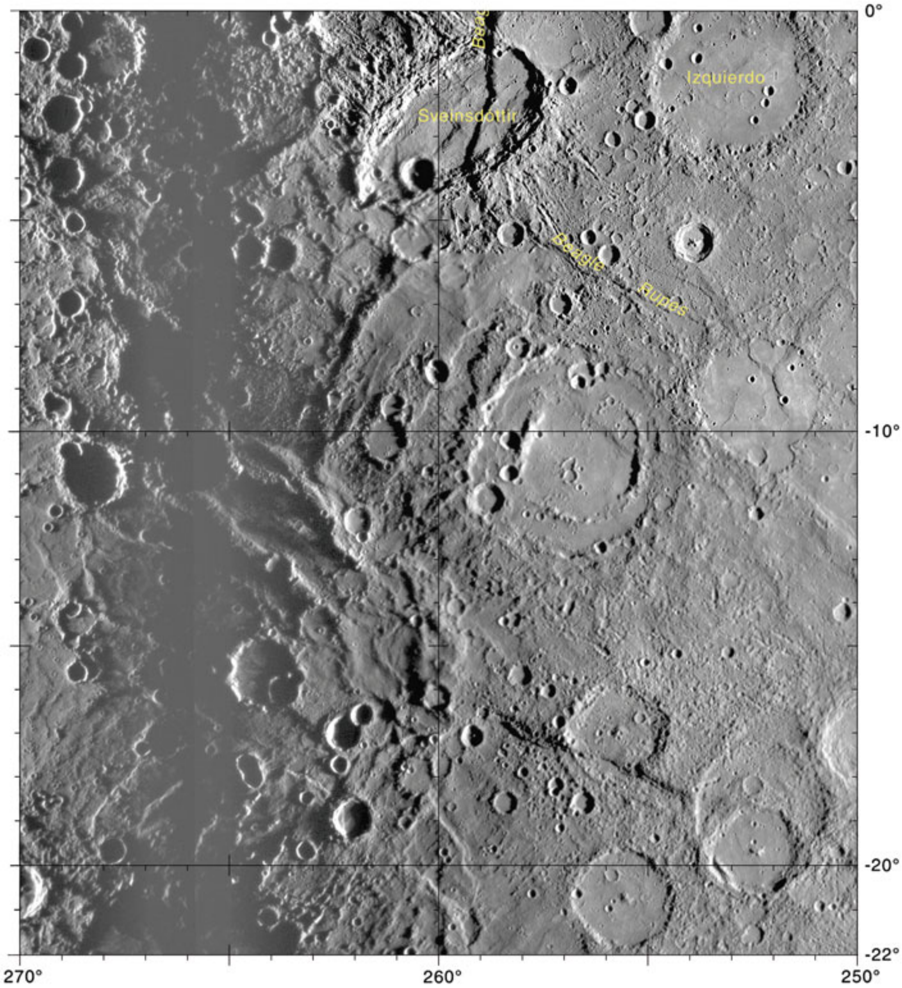


Map H-9-6: Eminescu Quadrangle

$(230° < \lambda < 250°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

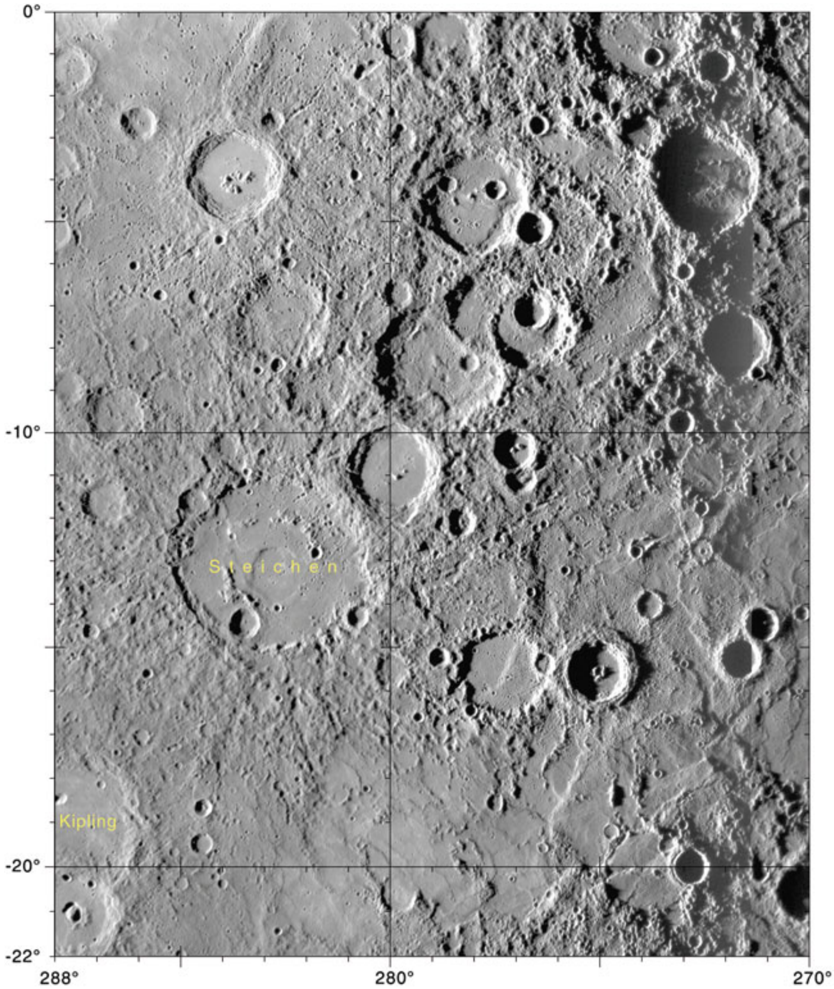


Map H-9-7: Eminescu Quadrangle

$(250° < \lambda < 270°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

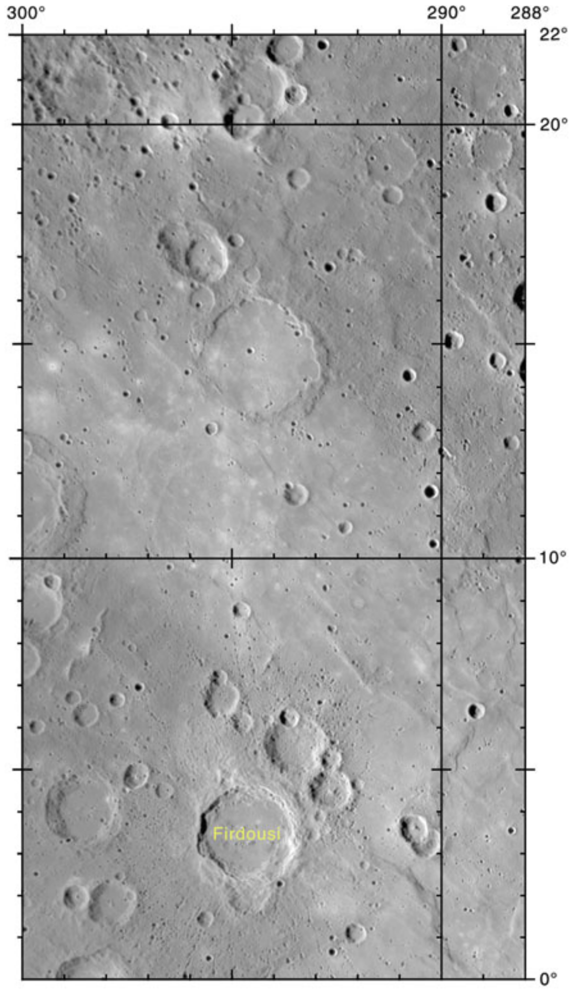


Map H-9-8: Eminescu Quadrangle

$(270° < \lambda < 288°,\ 0° > \phi > -22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-9.pdf

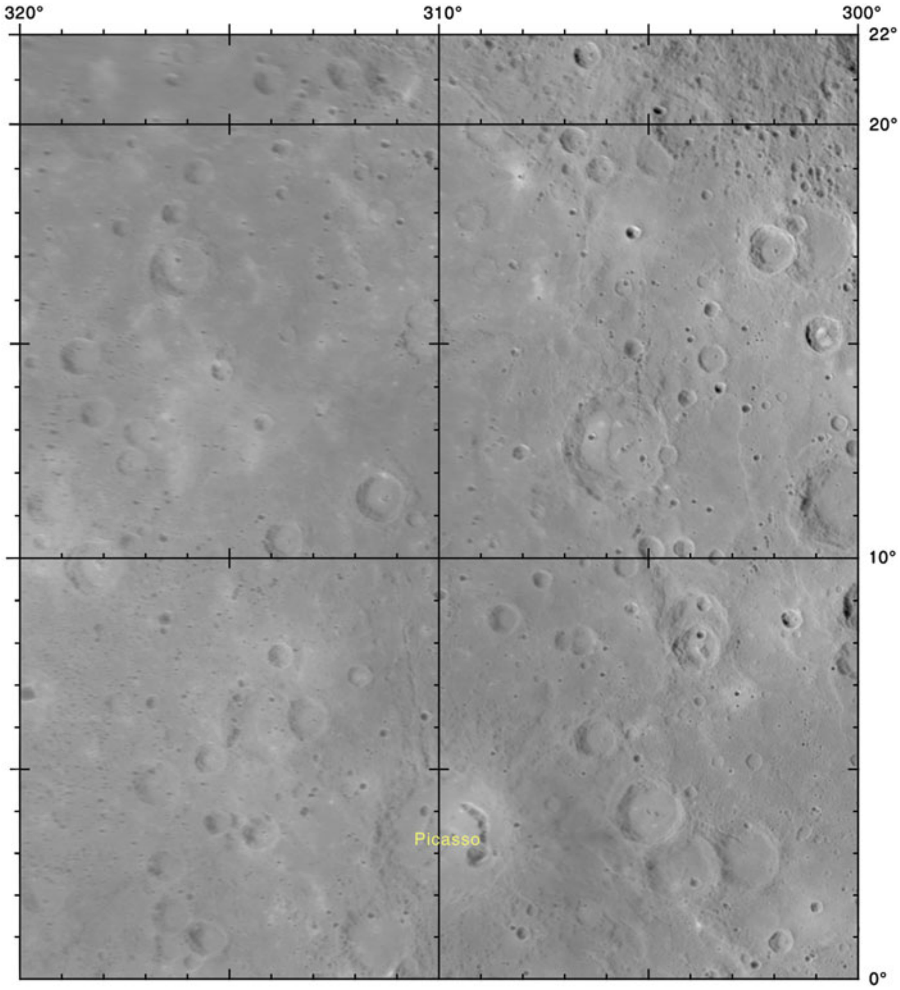


Map H-10-1: Derain Quadrangle

$(288° < \lambda < 300°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-10.pdf

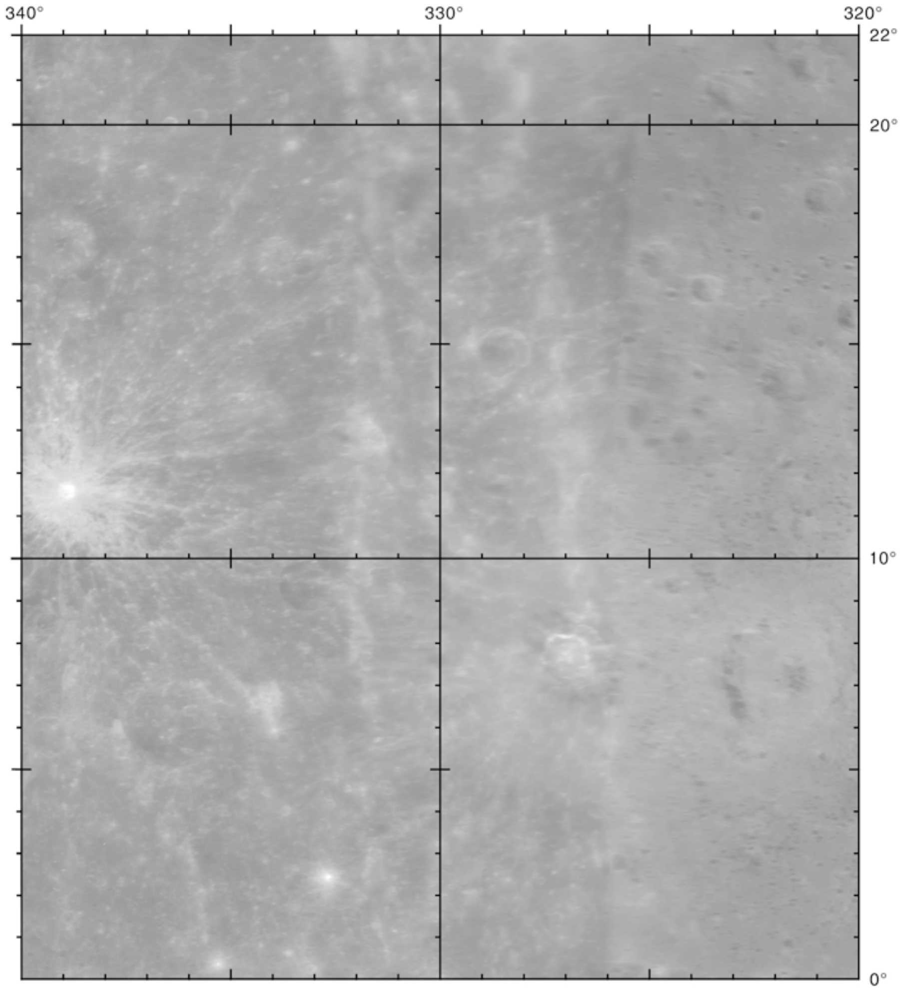


Map H-10-2: Derain Quadrangle

$(300° < \lambda < 320°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-10.pdf

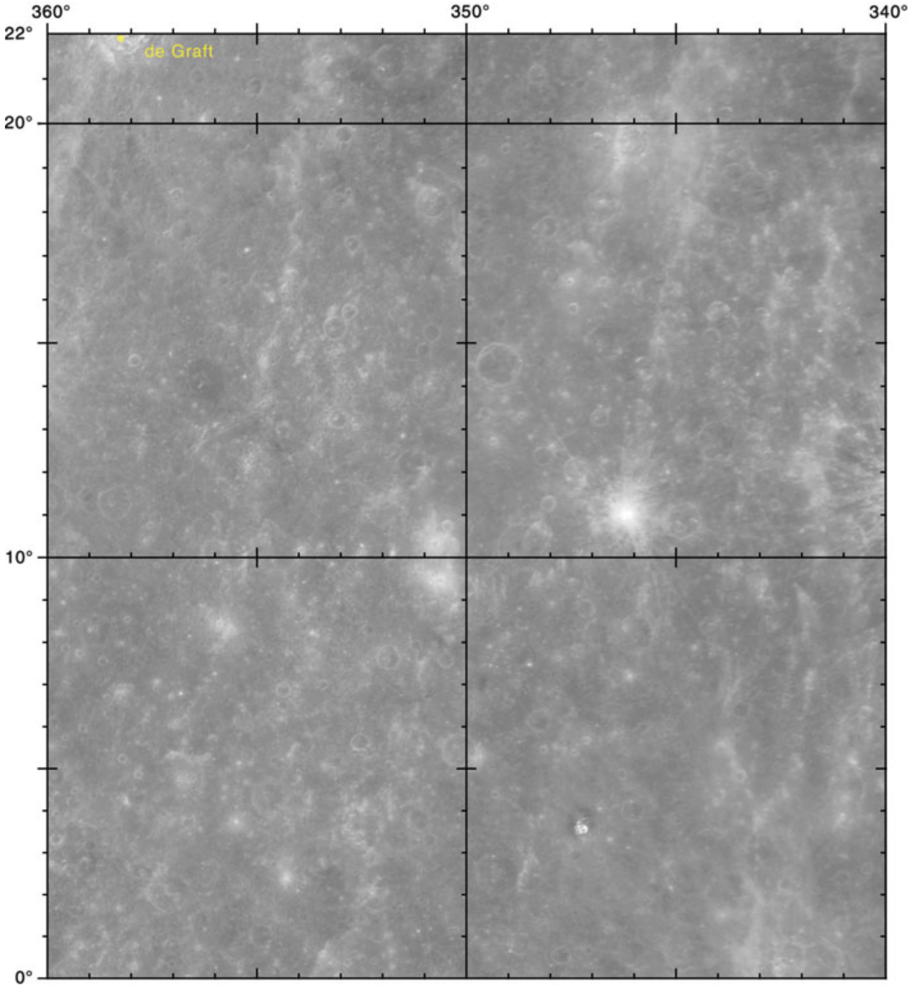


Map H-10-3: Derain Quadrangle

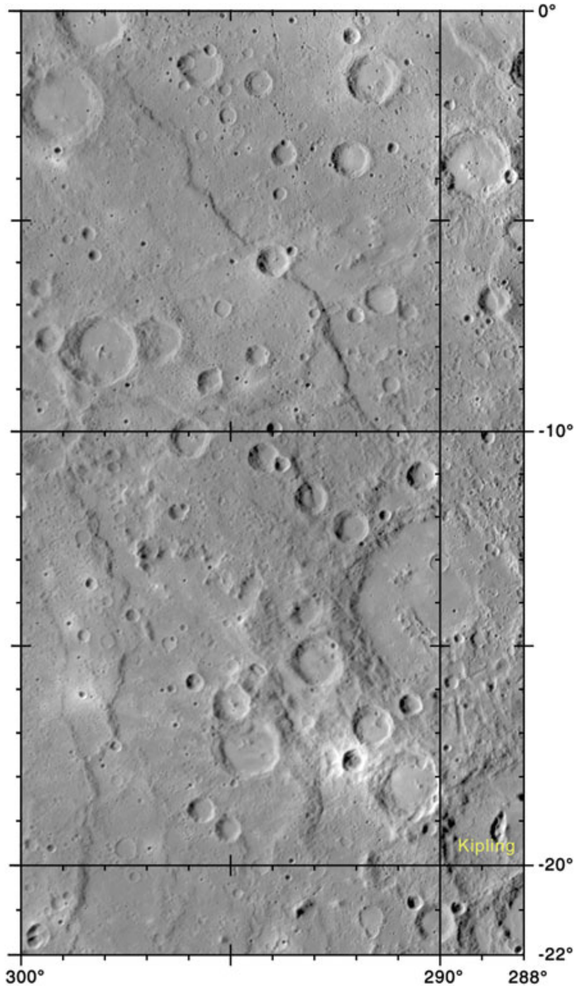
$(320° < \lambda < 340°,\ 0° < \phi < +22°)$

Courtesy of USGS Astrogeology Science Center

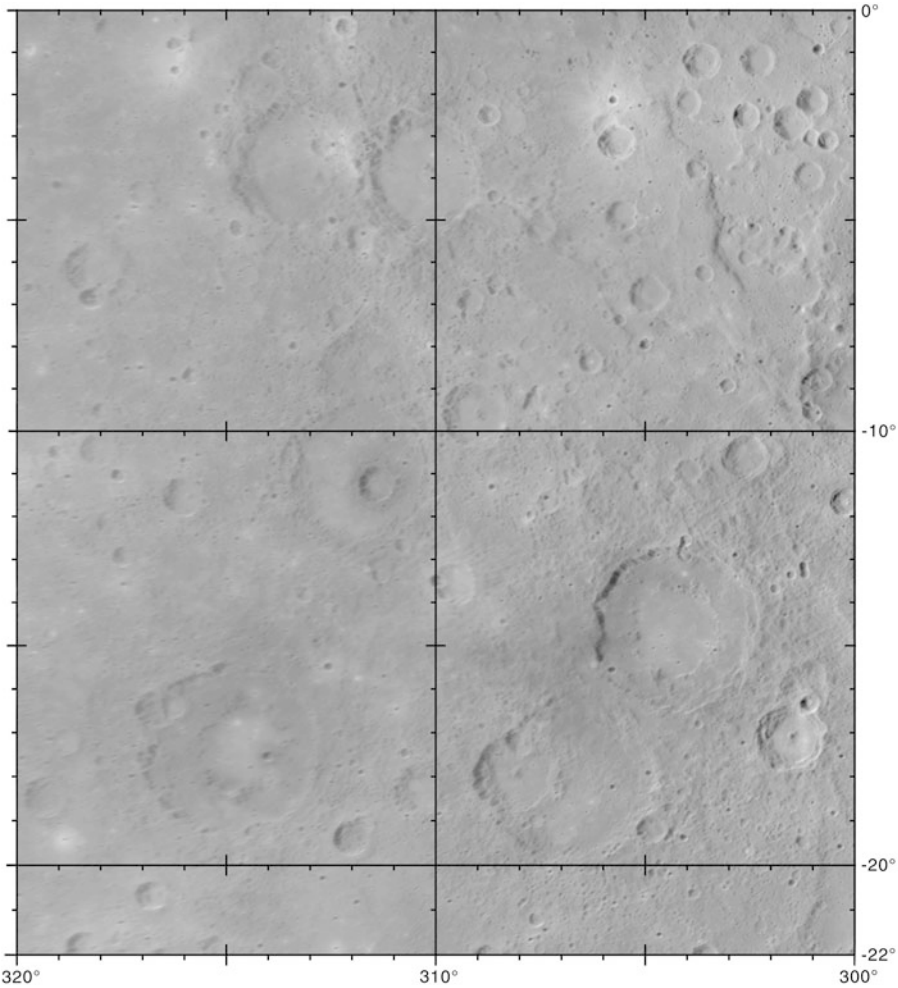
http://planetarynames.wr.usgs.gov/images/h-10.pdf



Map H-10-4: Derain Quadrangle
$(340° < \lambda < 360°,\ 0° < \phi < +22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-10.pdf



Map H-10-5: Derain Quadrangle
$(288° < \lambda < 300°,\ 0° > \phi > -22°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-10.pdf

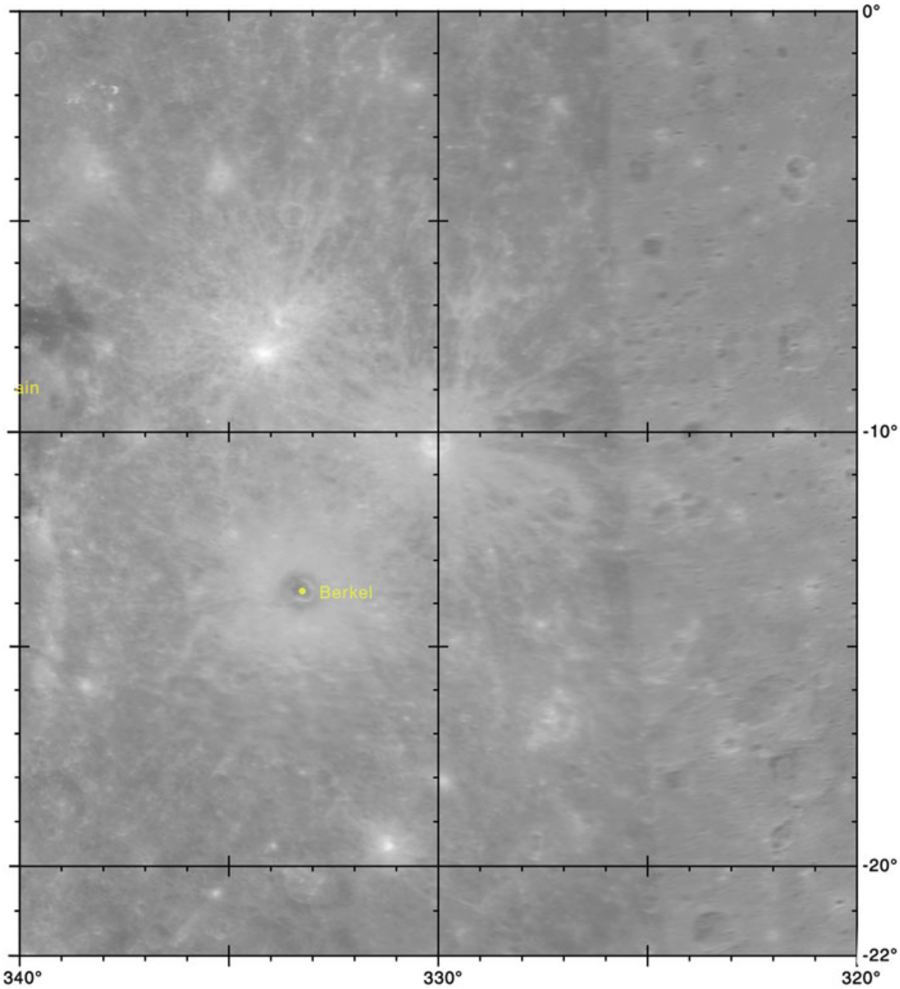


Map H-10-6: Derain Quadrangle

$(300^\circ < \lambda < 320^\circ,\ 0^\circ > \phi > -22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-10.pdf

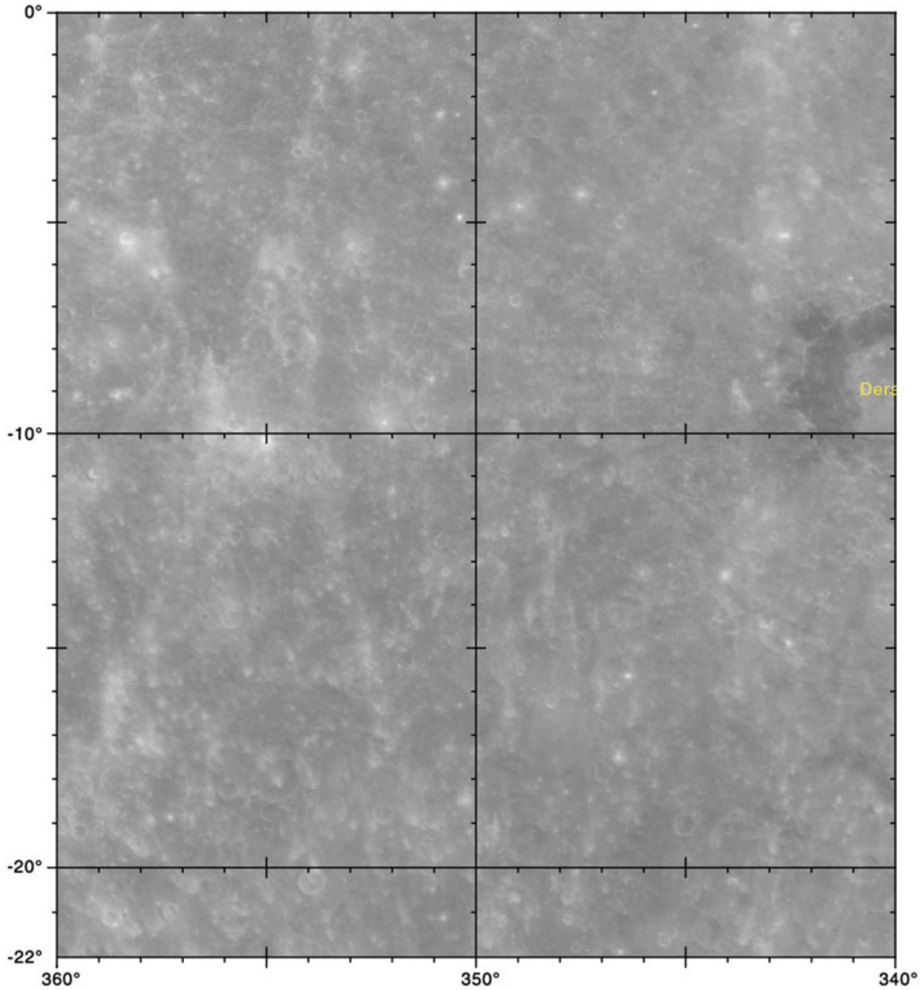


Map H-10-7: Derain Quadrangle

$(320^\circ < \lambda < 340^\circ,\ 0^\circ > \phi > -22^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-10.pdf

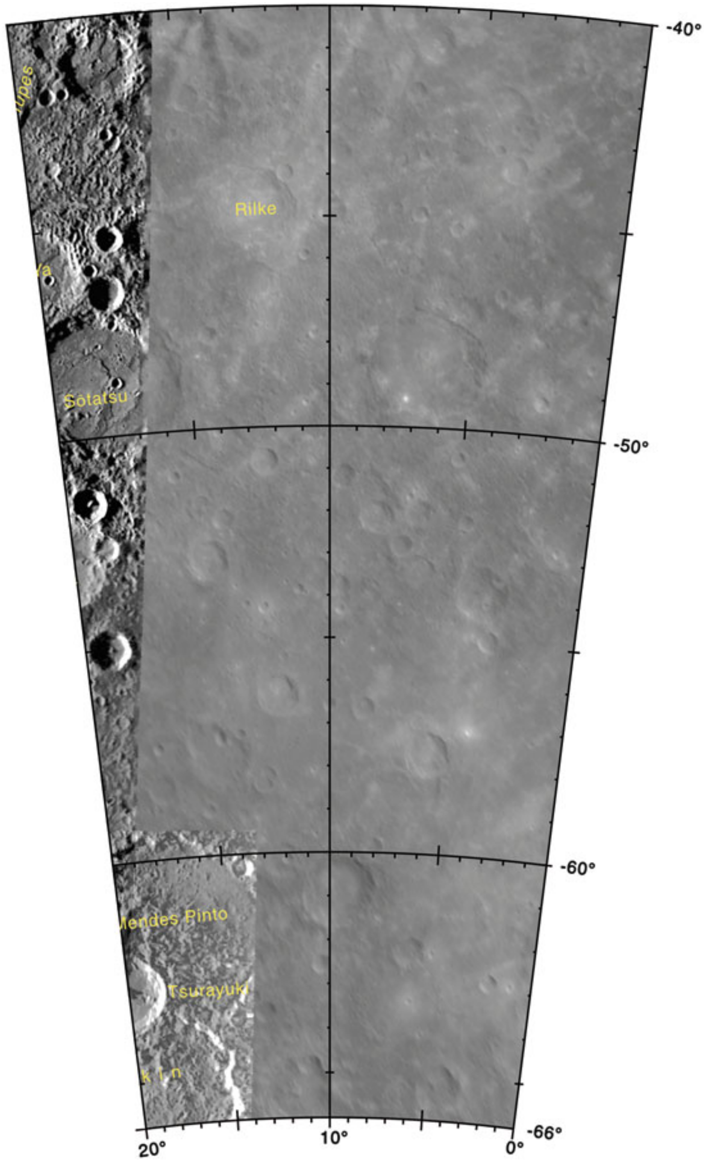


Map H-10-8: Derain Quadrangle

($340° < \lambda < 360°$, $0° > \phi > -22°$)

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-10.pdf

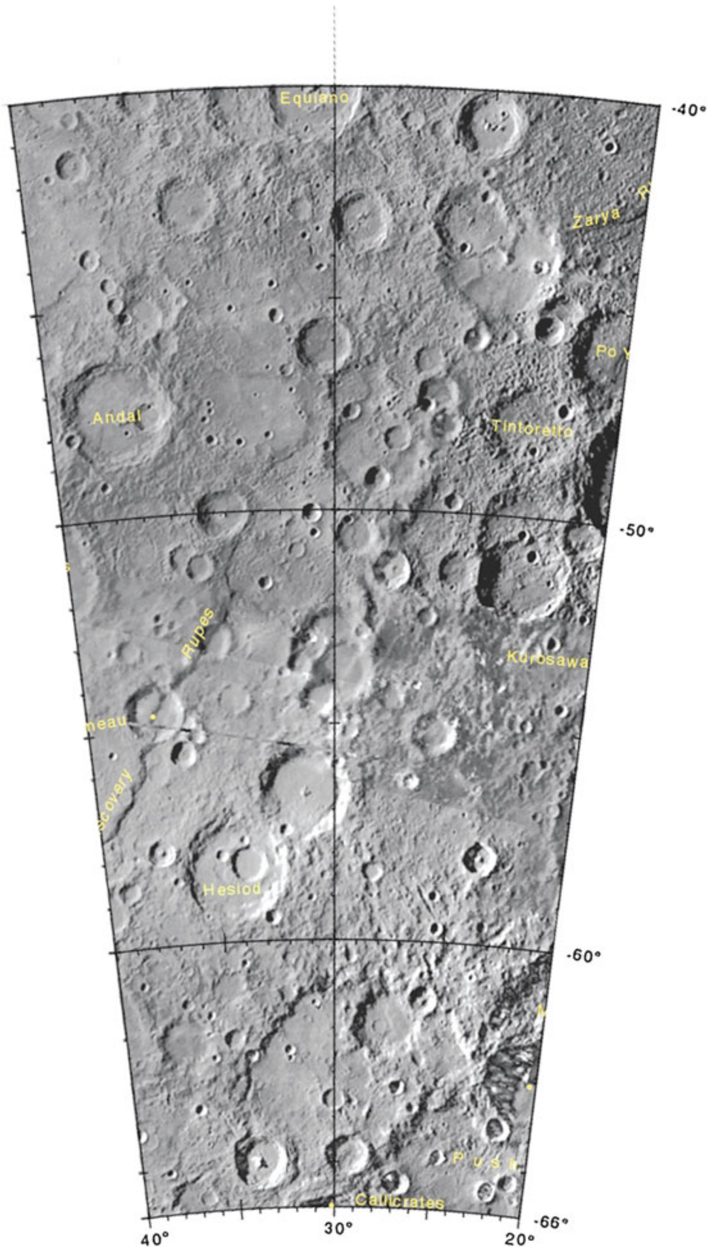


Map H-11-1: Discovery Quadrangle

$(0° < \lambda < 20°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-11.pdf

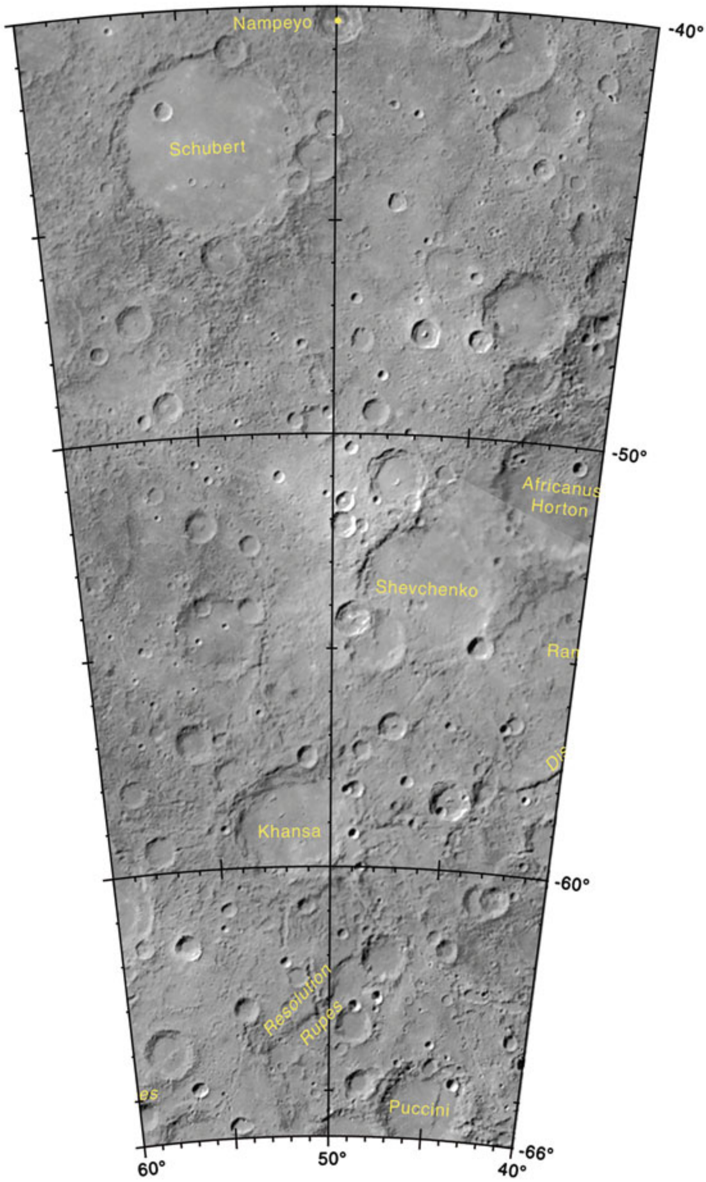


Map H-11-2: Discovery Quadrangle

$(20^\circ < \lambda < 40^\circ,\ -21^\circ > \phi > -40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-11.pdf

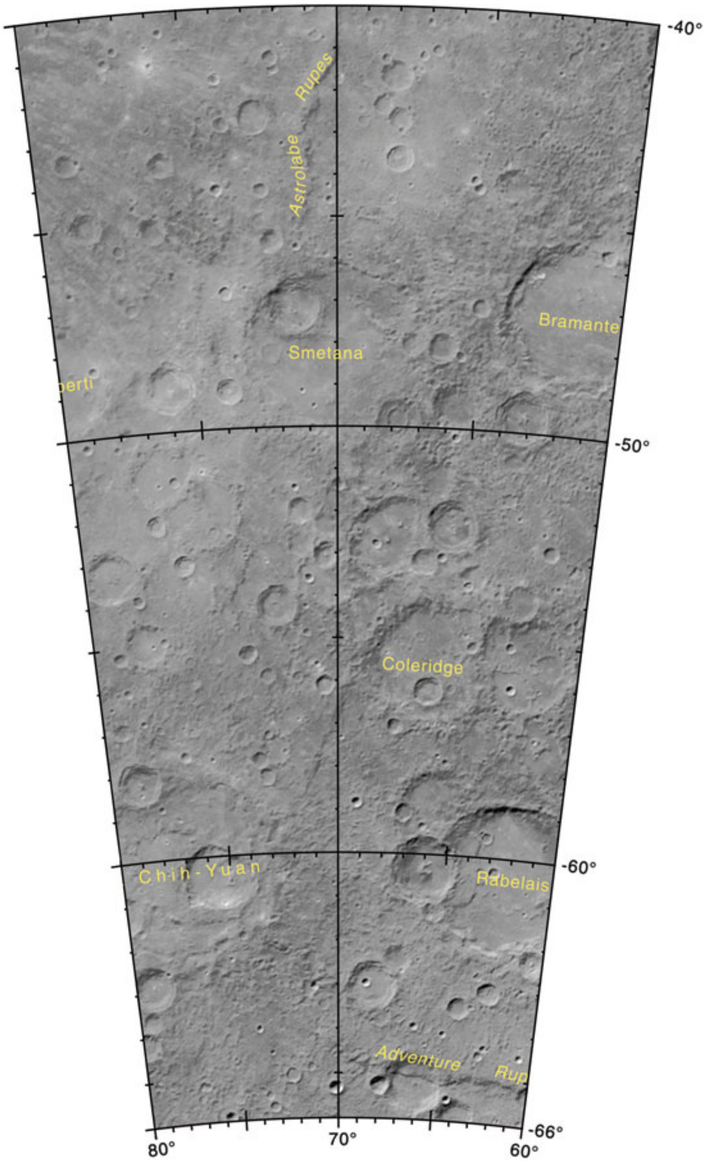


Map H-11-3: Discovery Quadrangle

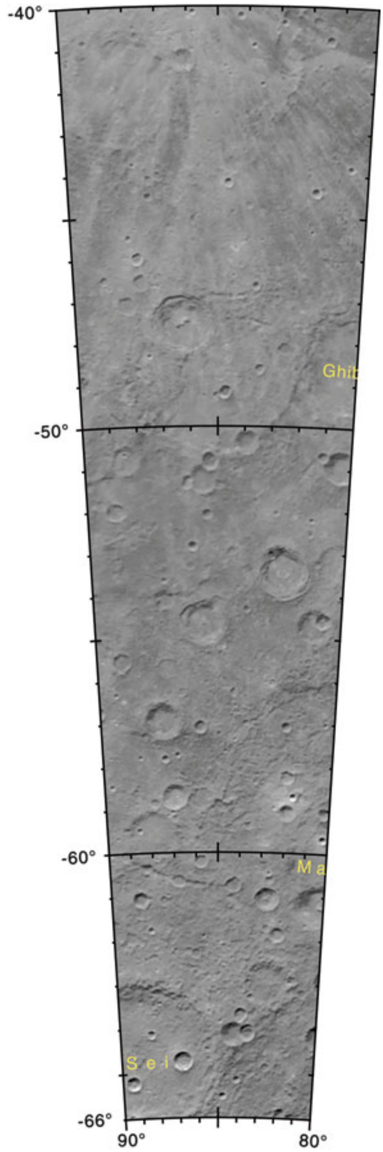
$(40^\circ < \lambda < 60^\circ,\ -21^\circ > \phi > -40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-11.pdf



Map H-11-4: Discovery Quadrangle
($60^\circ < \lambda < 80^\circ$, $-21^\circ > \phi > -40^\circ$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-11.pdf

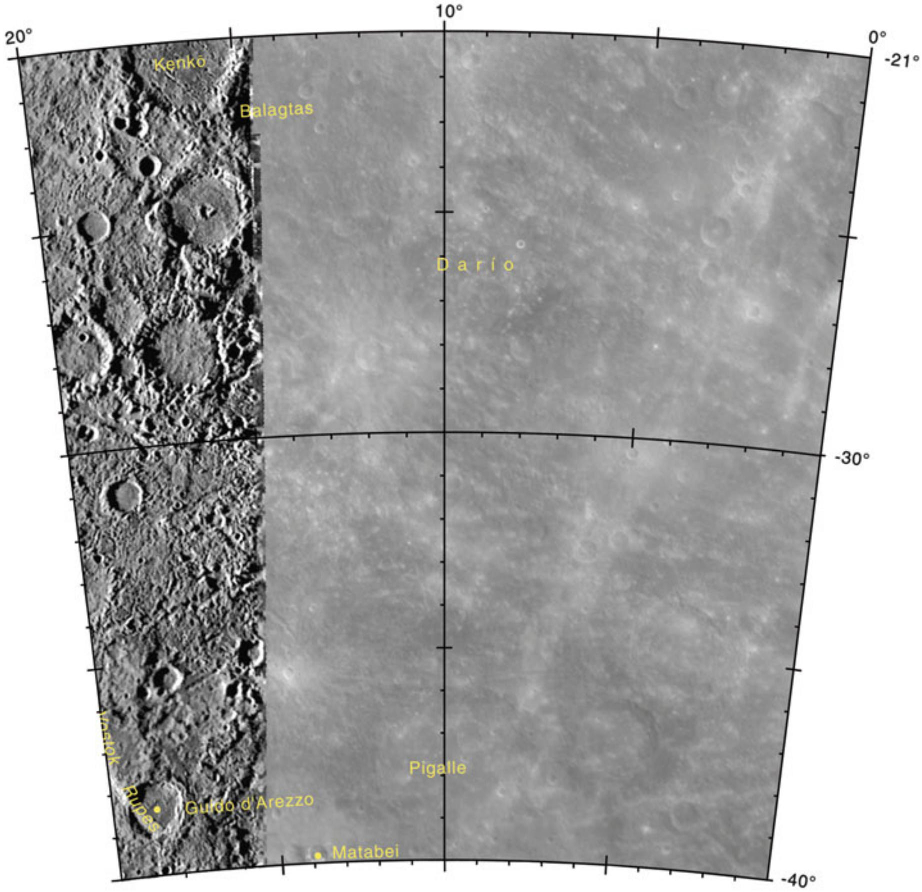


Map H-11-5: Discovery Quadrangle

$(80° < \lambda < 90°, -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-11.pdf

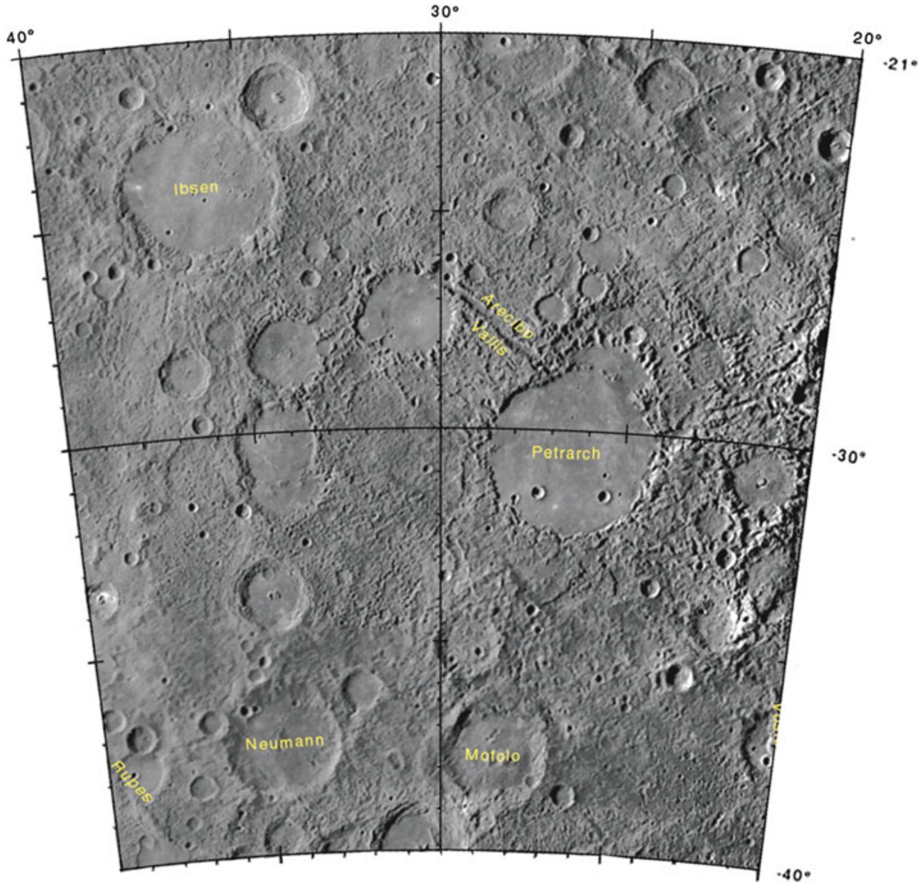


Map H-11-6: Discovery Quadrangle

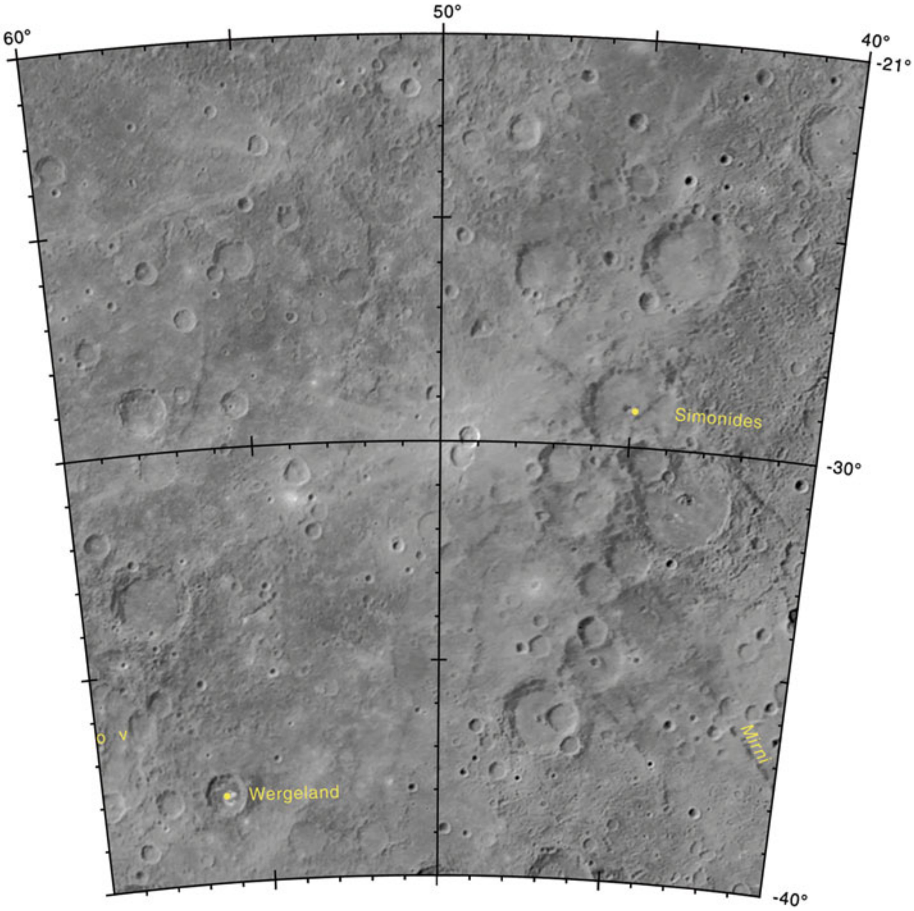
$(0° < \lambda < 20°,\ -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

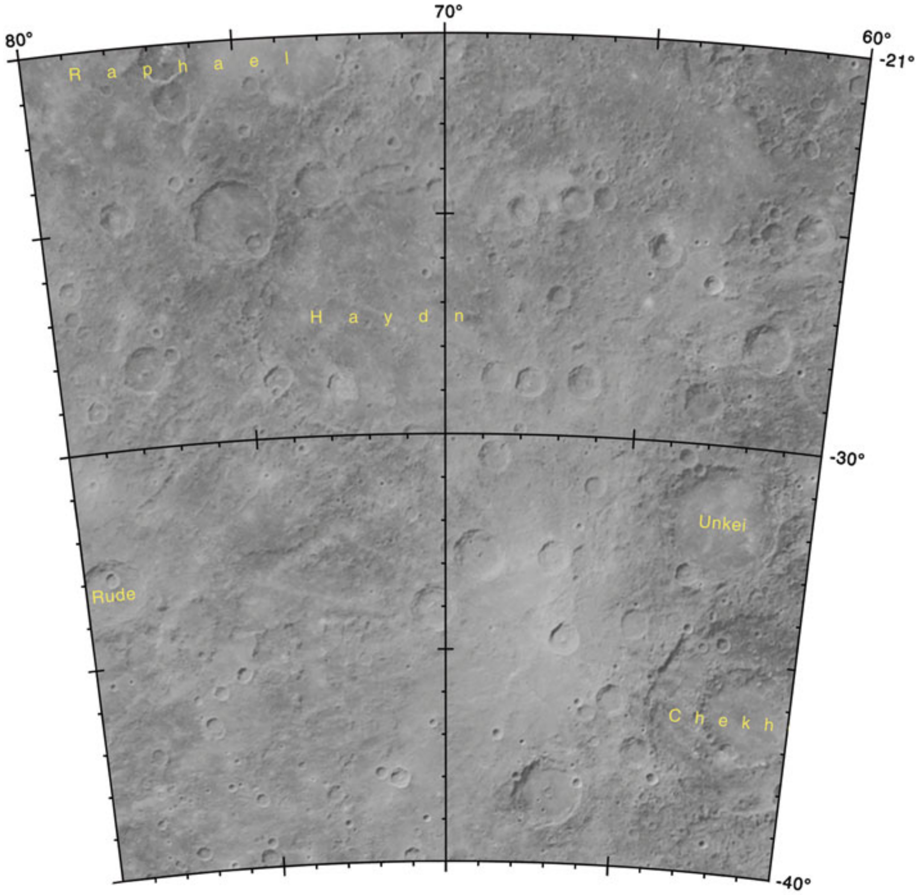
http://planetarynames.wr.usgs.gov/images/h-11.pdf



Map H-11-7: Discovery Quadrangle
$(20° < \lambda < 40°,\ -40° > \phi > -66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-11.pdf



Map H-11-8: Discovery Quadrangle
$(40° < \lambda < 60°,\ -40° > \phi > -66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-11.pdf

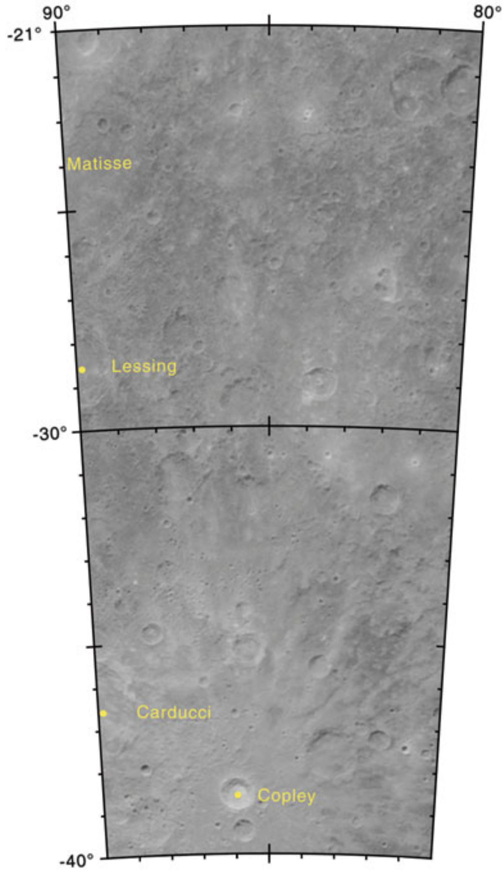


Map H-11-9: Discovery Quadrangle

($60° < \lambda < 80°$, $-40° > \phi > -66°$)

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-11.pdf

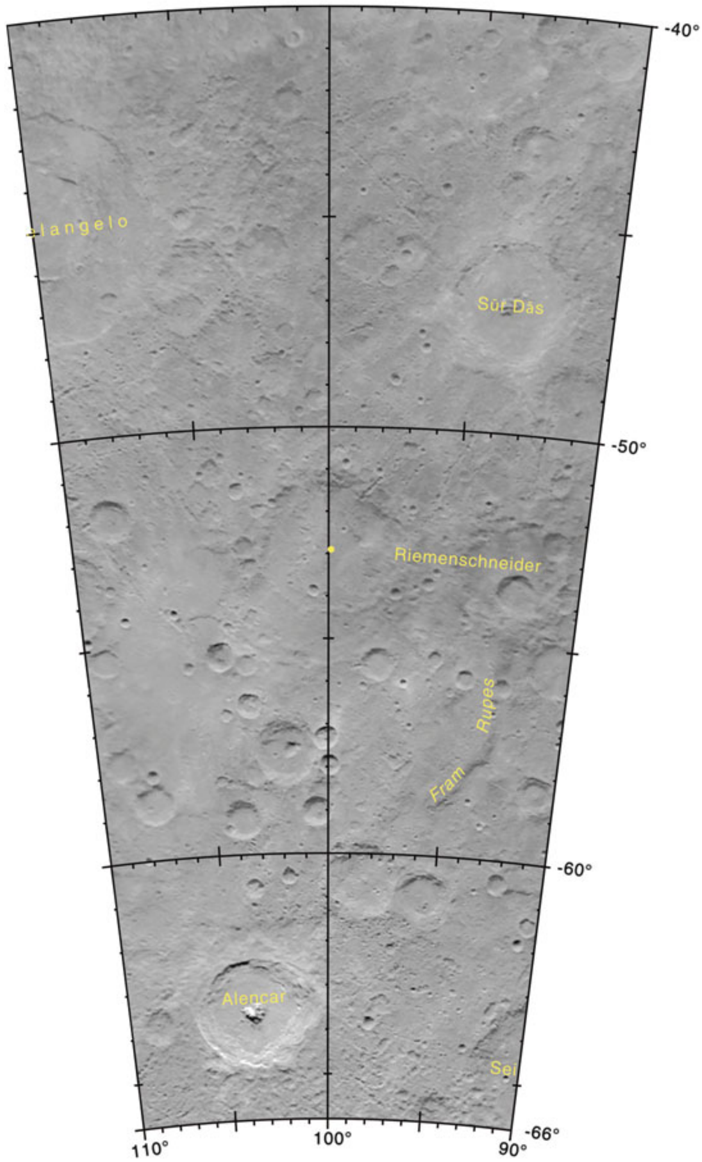


Map H-11-10: Discovery Quadrangle

$(80° < \lambda < 90°, -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-11.pdf

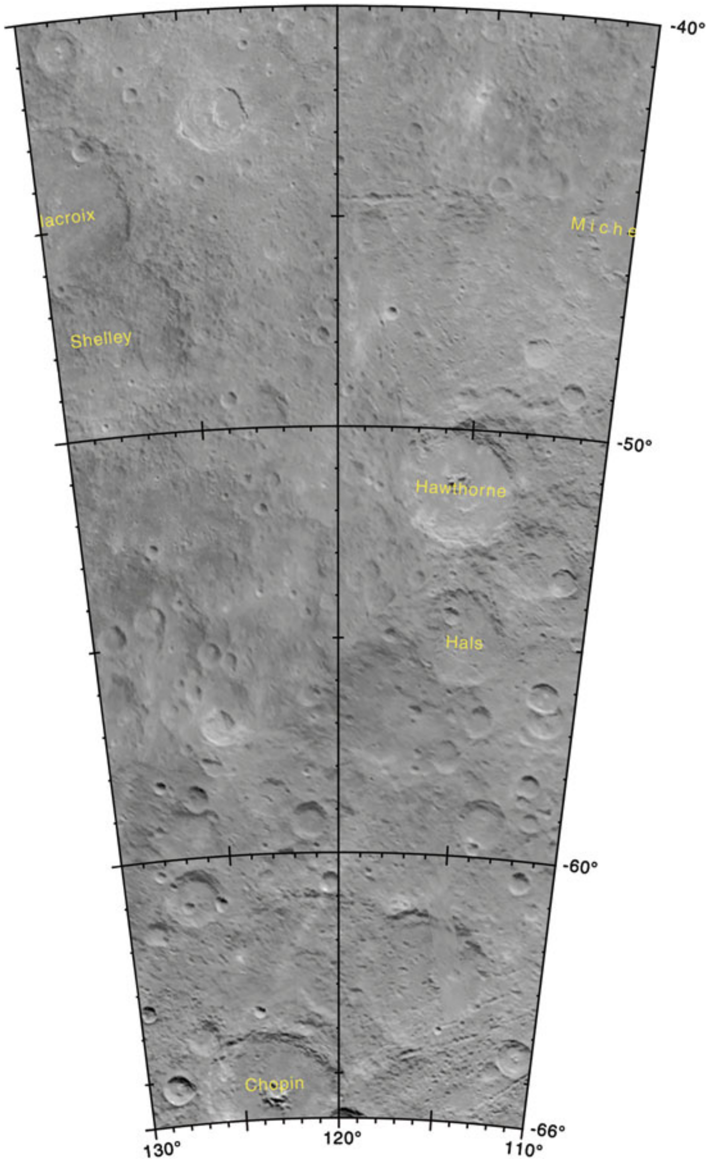


Map H-12-1: Michelangelo Quadrangle

$(90^\circ < \lambda < 110^\circ, -21^\circ > \phi > -40^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf

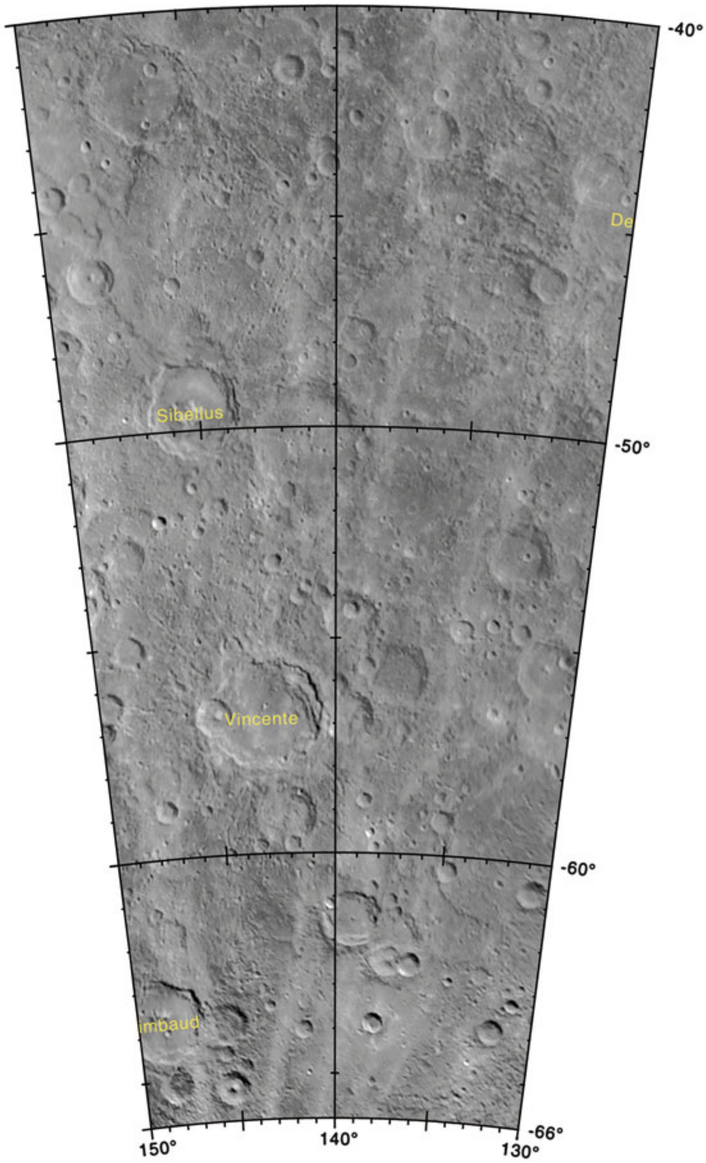


Map H-12-2: Michelangelo Quadrangle

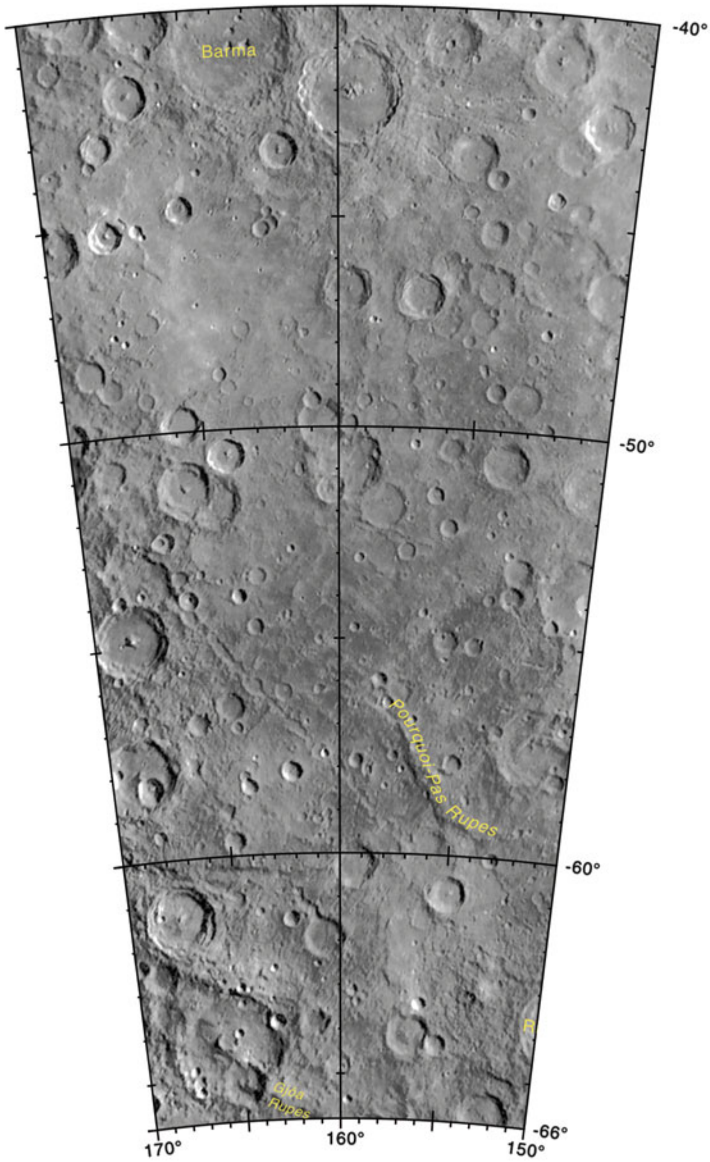
$(110° < \lambda < 130°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf



Map H-12-3: Michelangelo Quadrangle
$(130° < \lambda < 150°,\ -21° > \phi > -40°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-12.pdf

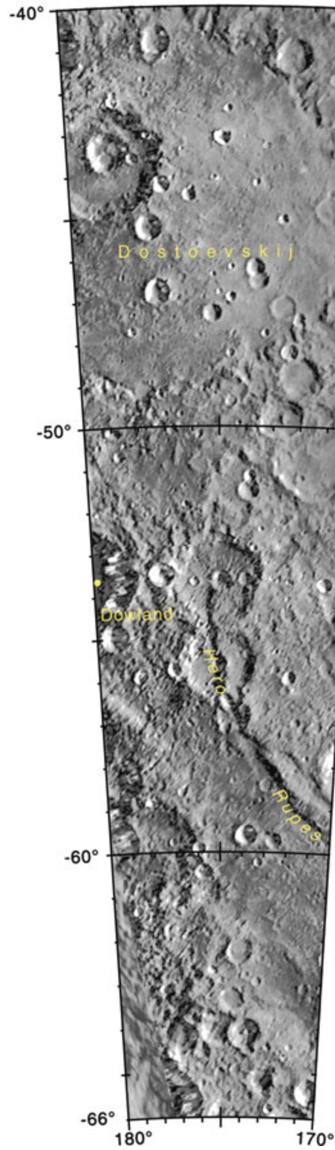


Map H-12-4: Michelangelo Quadrangle

($150^\circ < \lambda < 170^\circ$, $-21^\circ > \phi > -40^\circ$)

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf

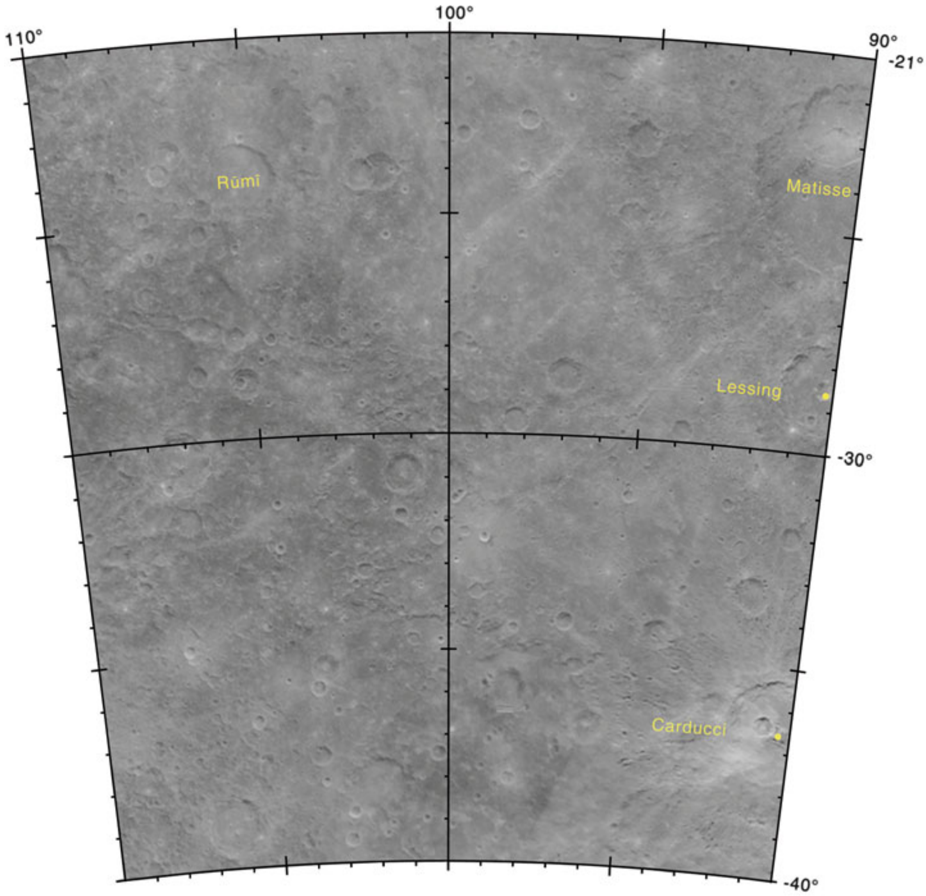


Map H-12-5: Michelangelo Quadrangle

$(170° < \lambda < 180°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf

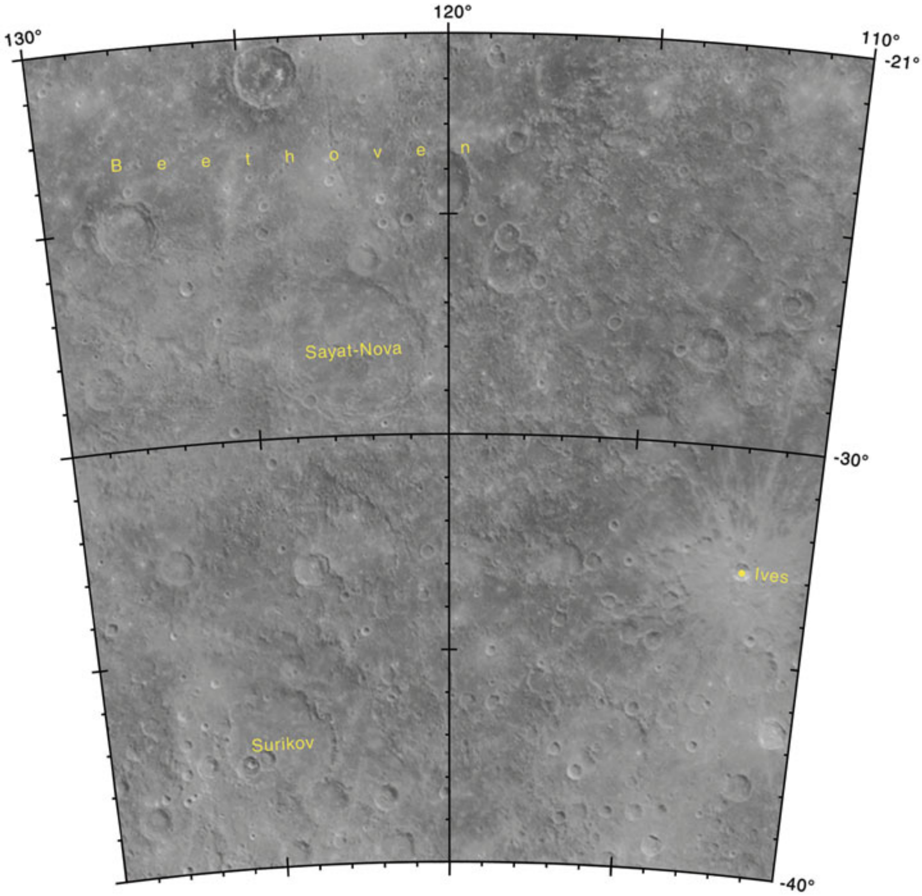


Map H-12-6: Michelangelo Quadrangle

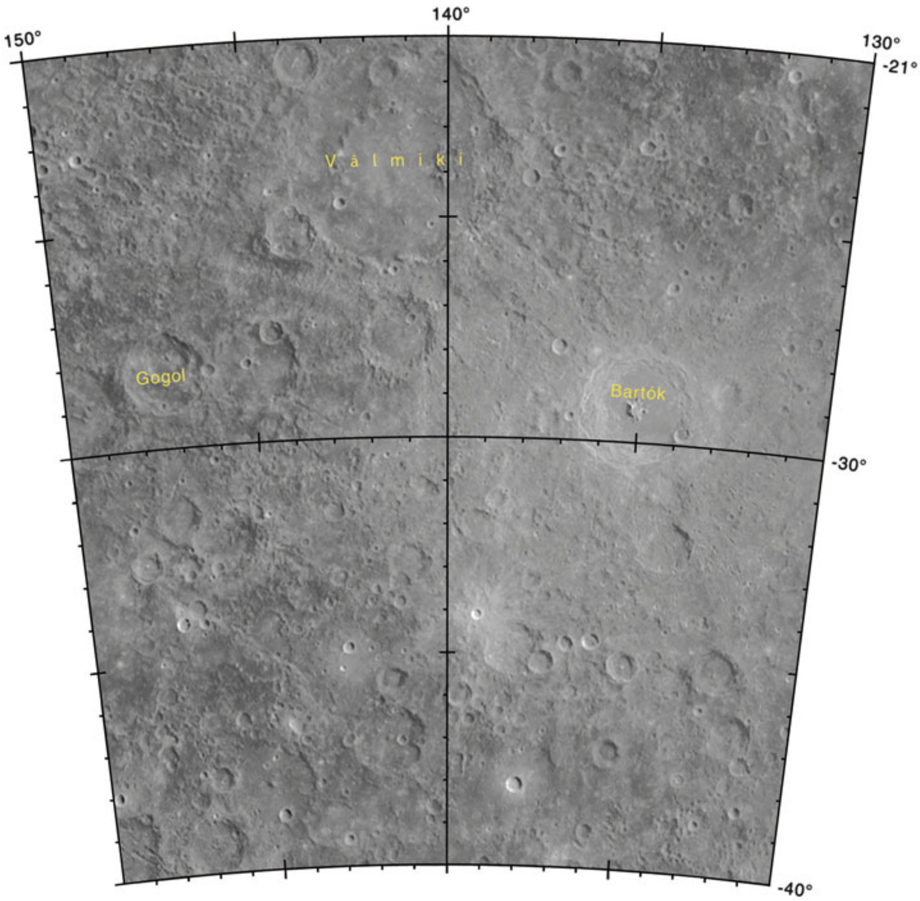
$(90° < \lambda < 110°, -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf



Map H-12-7: Michelangelo Quadrangle
$(110° < \lambda < 130°,\ -40° > \phi > -66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-12.pdf

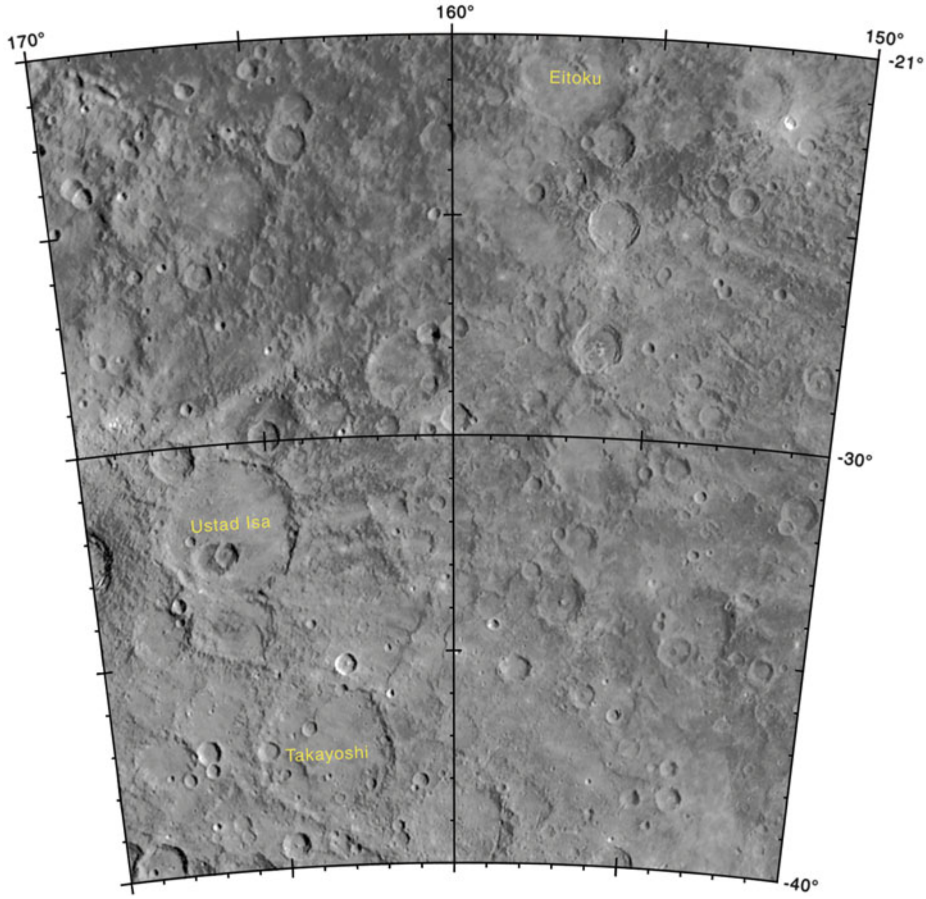


Map H-12-8: Michelangelo Quadrangle

$(130° < \lambda < 150°,\ -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf

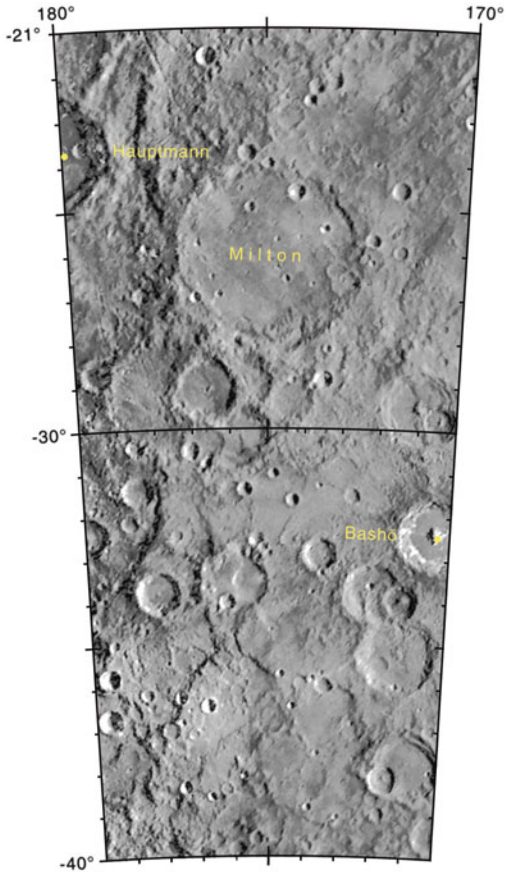


Map H-12-9: Michelangelo Quadrangle

$(150° < \lambda < 170°, -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf

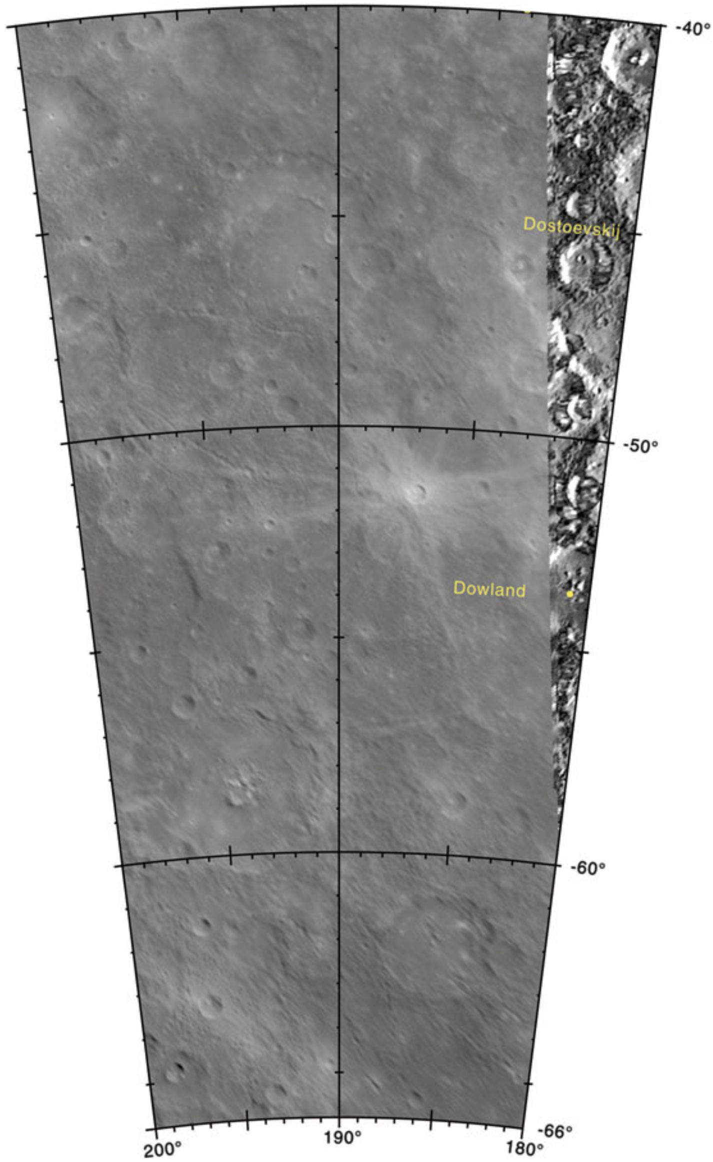


Map H-12-10: Michelangelo Quadrangle

$(170° < \lambda < 180°, -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-12.pdf

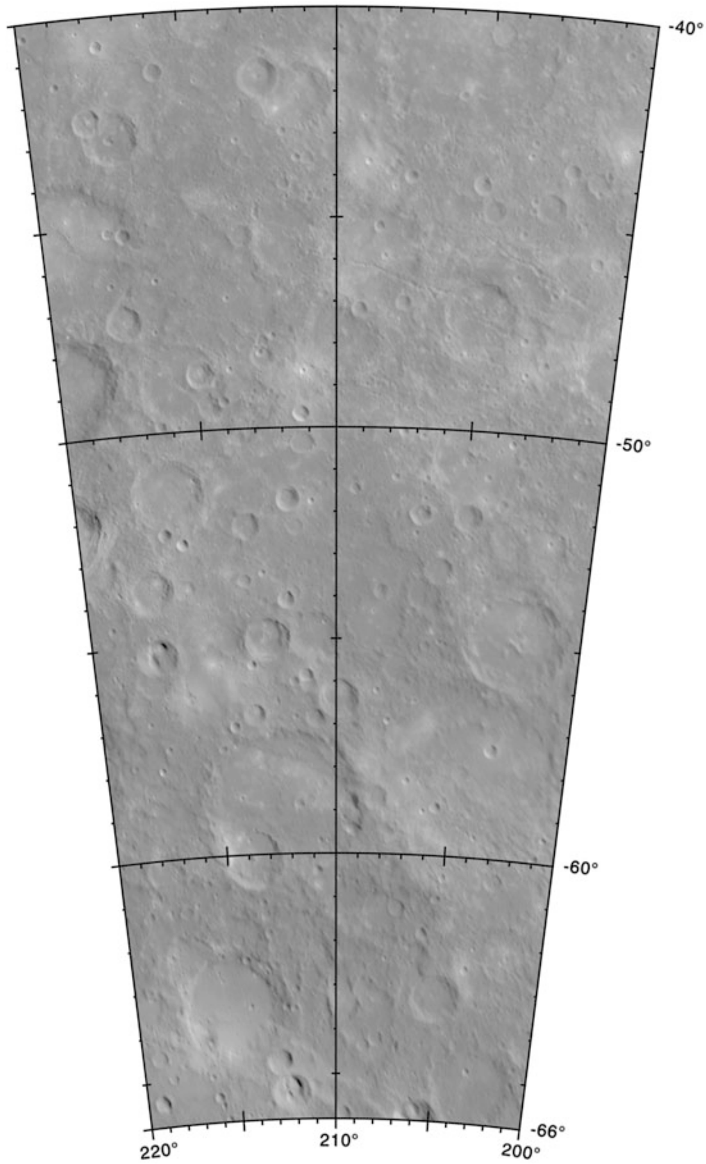


Map H-13-1: Neruda Quadrangle

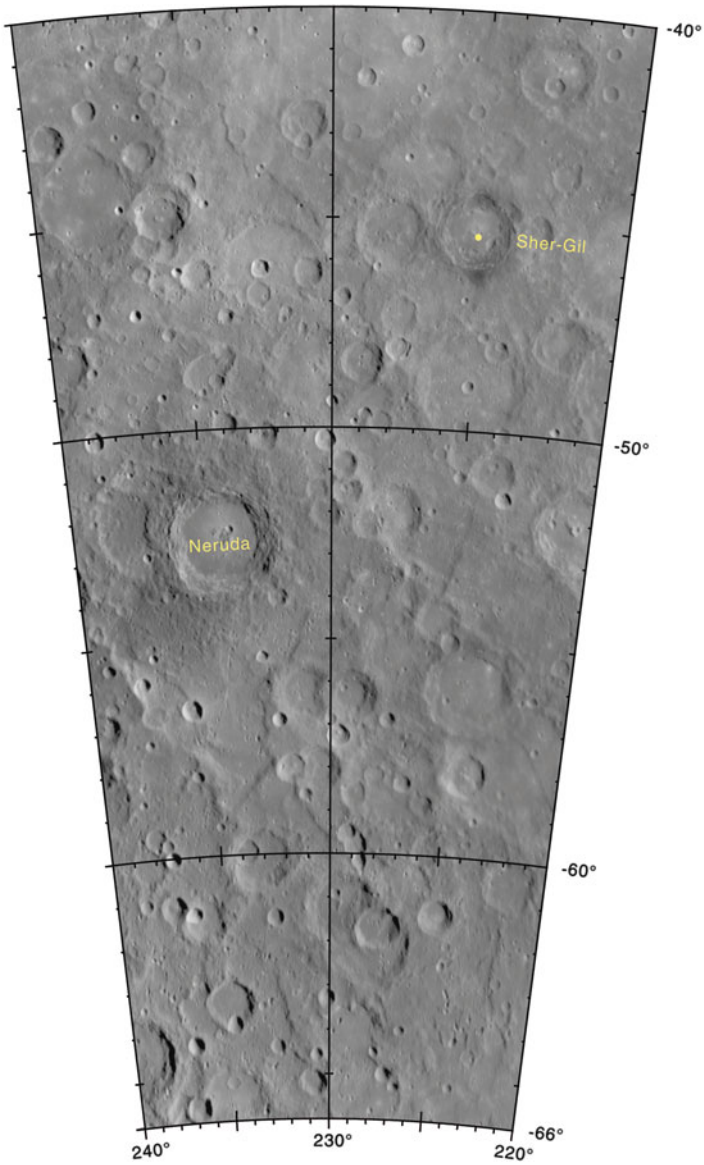
$(180° < \lambda < 200°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

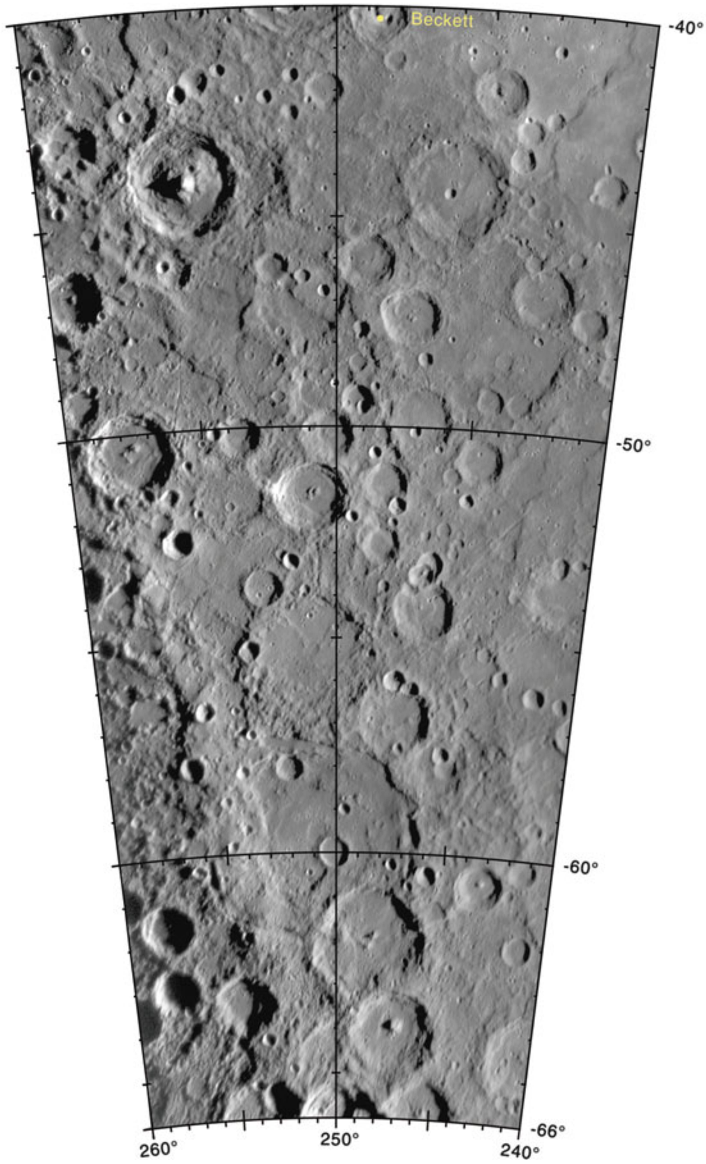
http://planetarynames.wr.usgs.gov/images/h-13.pdf



Map H-13-2: Neruda Quadrangle
$(200^\circ < \lambda < 220^\circ,\ -21^\circ > \phi > -40^\circ)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-13.pdf



Map H-13-3: Neruda Quadrangle
$(220° < \lambda < 240°,\ -21° > \phi > -40°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-13.pdf

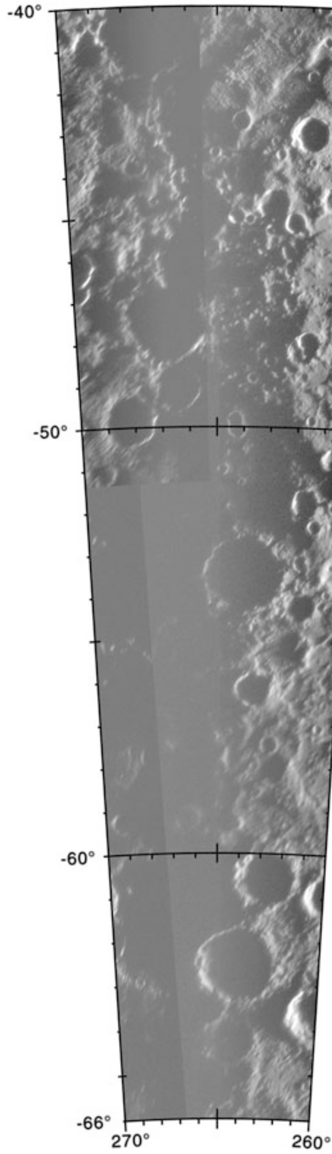


Map H-13-4: Neruda Quadrangle

$(240° < \lambda < 260°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-13.pdf

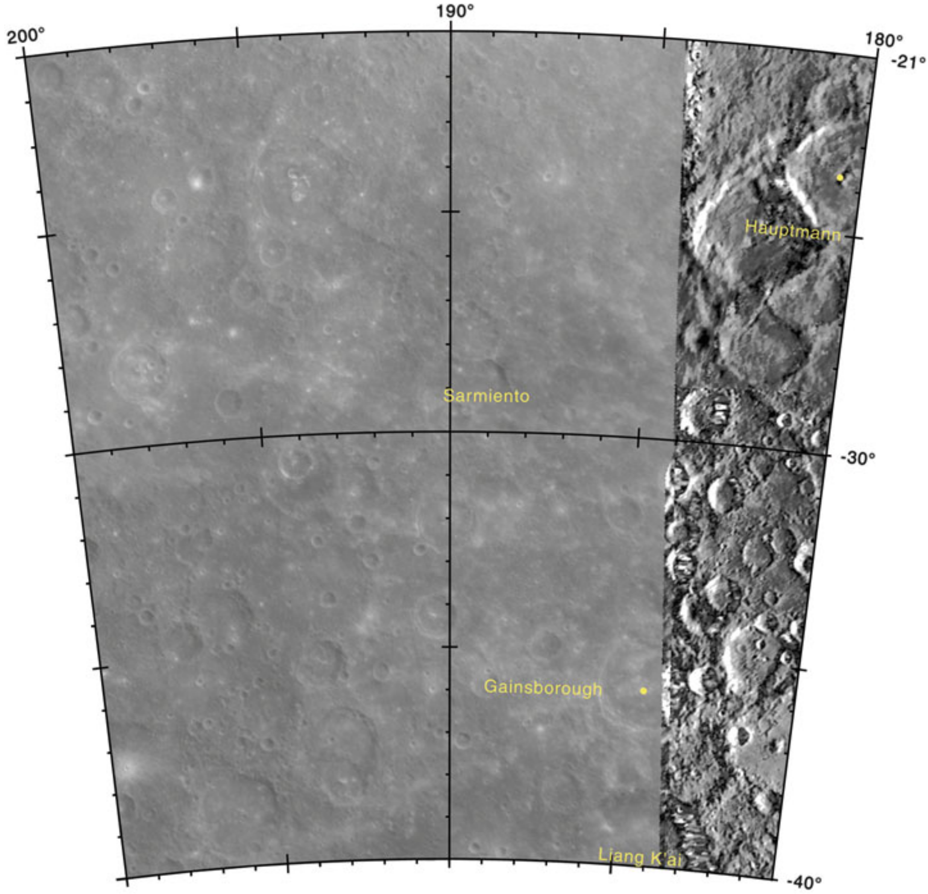


Map H-13-5: Neruda Quadrangle

$(260° < \lambda < 270°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-13.pdf

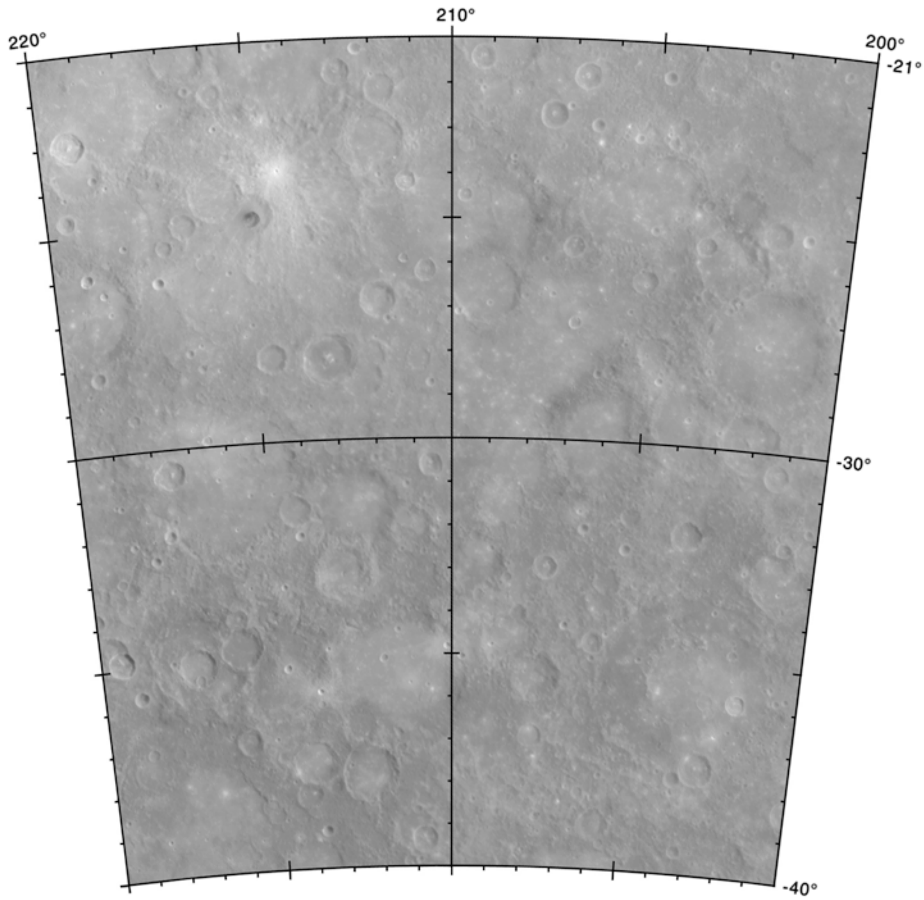


Map H-13-6: Neruda Quadrangle

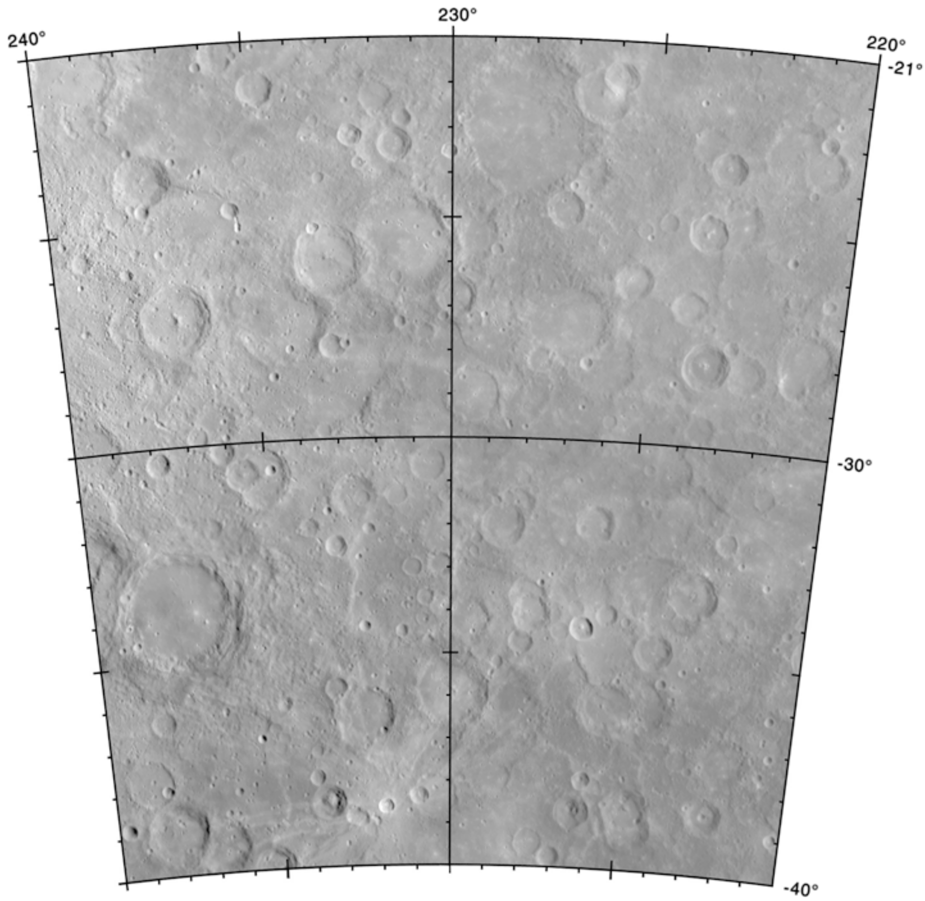
$(180° < \lambda < 200°,\ -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

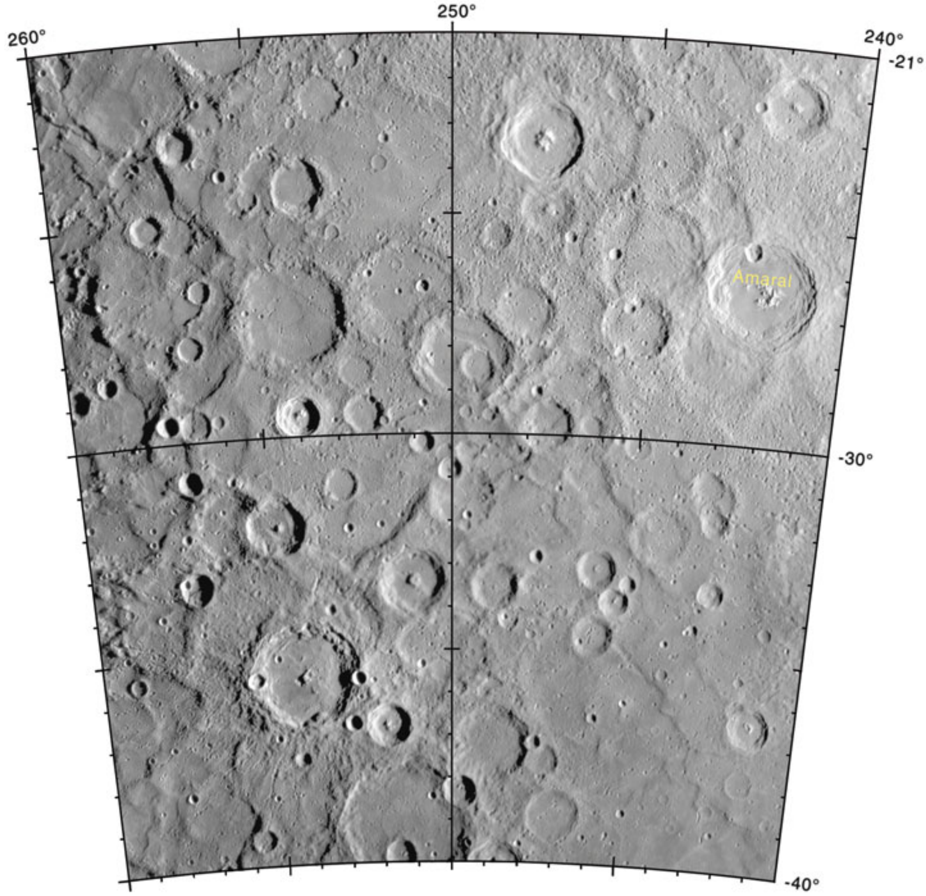
http://planetarynames.wr.usgs.gov/images/h-13.pdf



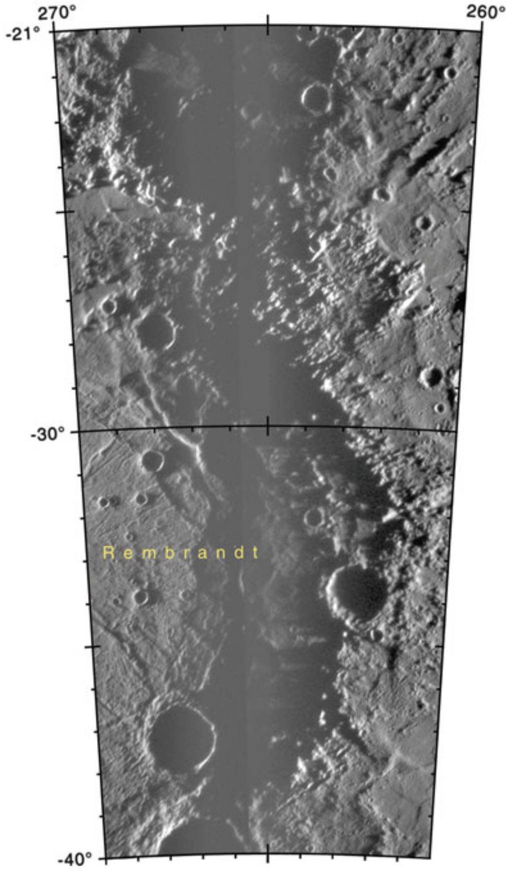
Map H-13-7: Neruda Quadrangle
$(200° < \lambda < 220°,\ -40° > \phi > -66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-13.pdf



Map H-13-8: Neruda Quadrangle
$(220° < \lambda < 240°,\ -40° > \phi > -66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-13.pdf



Map H-13-9: Neruda Quadrangle
$(240° < \lambda < 260°,\ -40° > \phi > -66°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-13.pdf

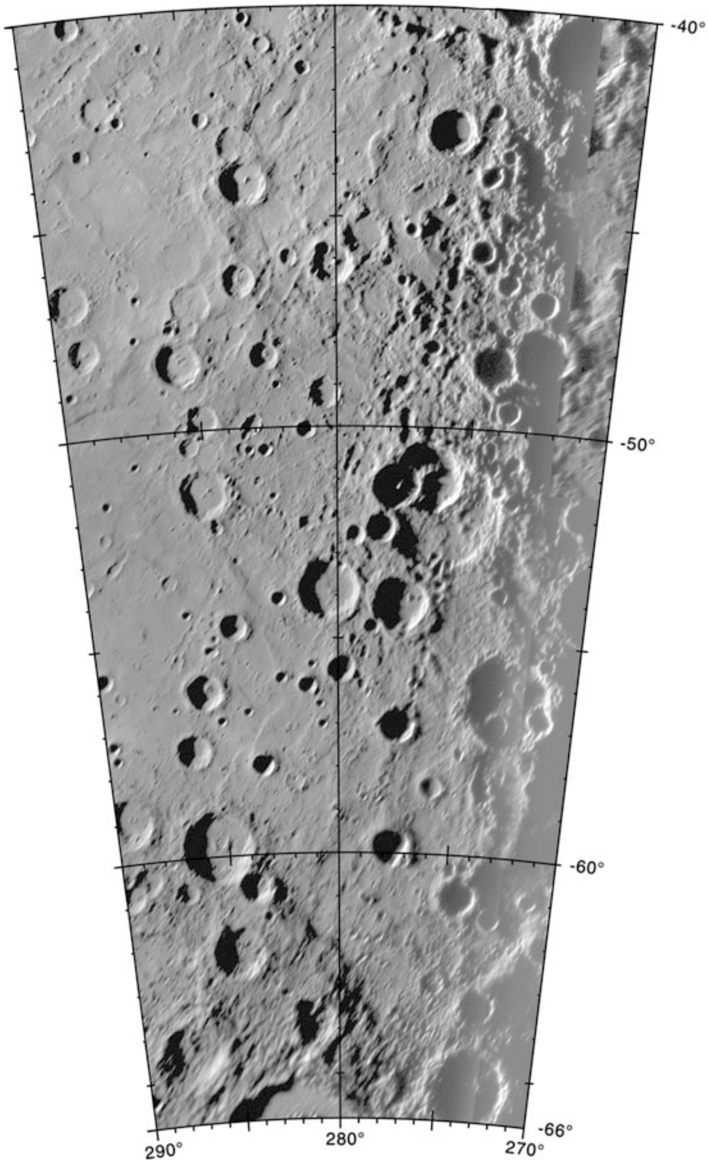


Map H-13-10: Neruda Quadrangle

$(260° < \lambda < 270°,\ -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-13.pdf

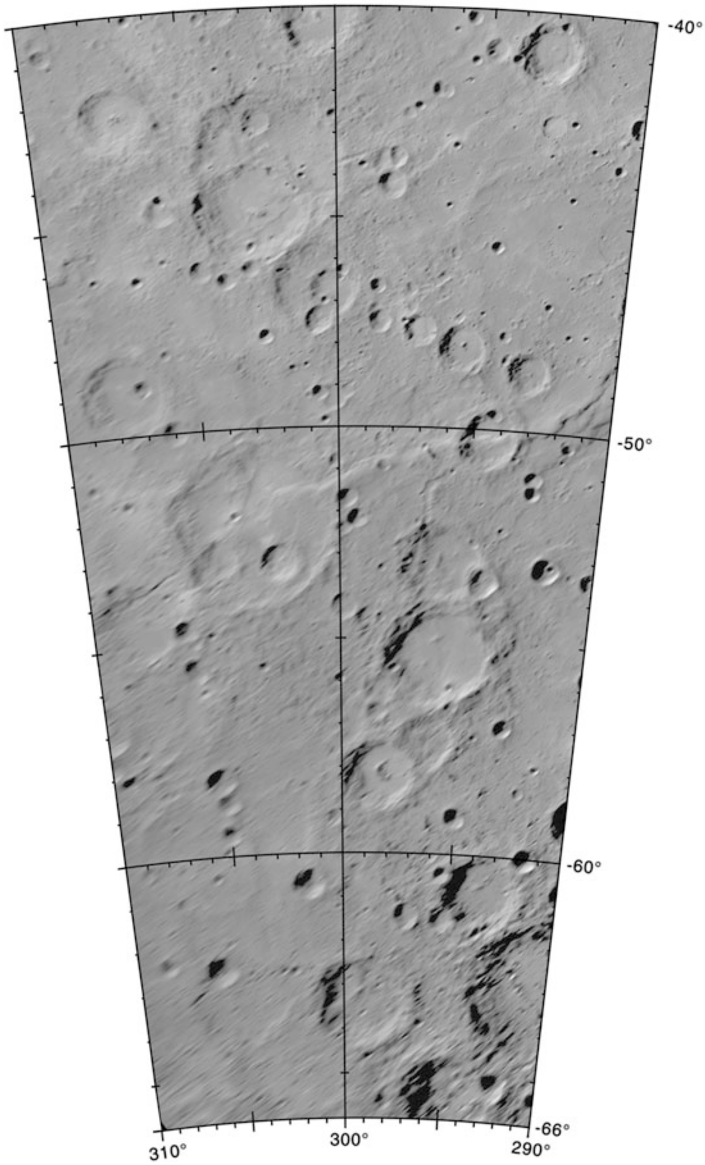


Map H-14-1: Debussy Quadrangle

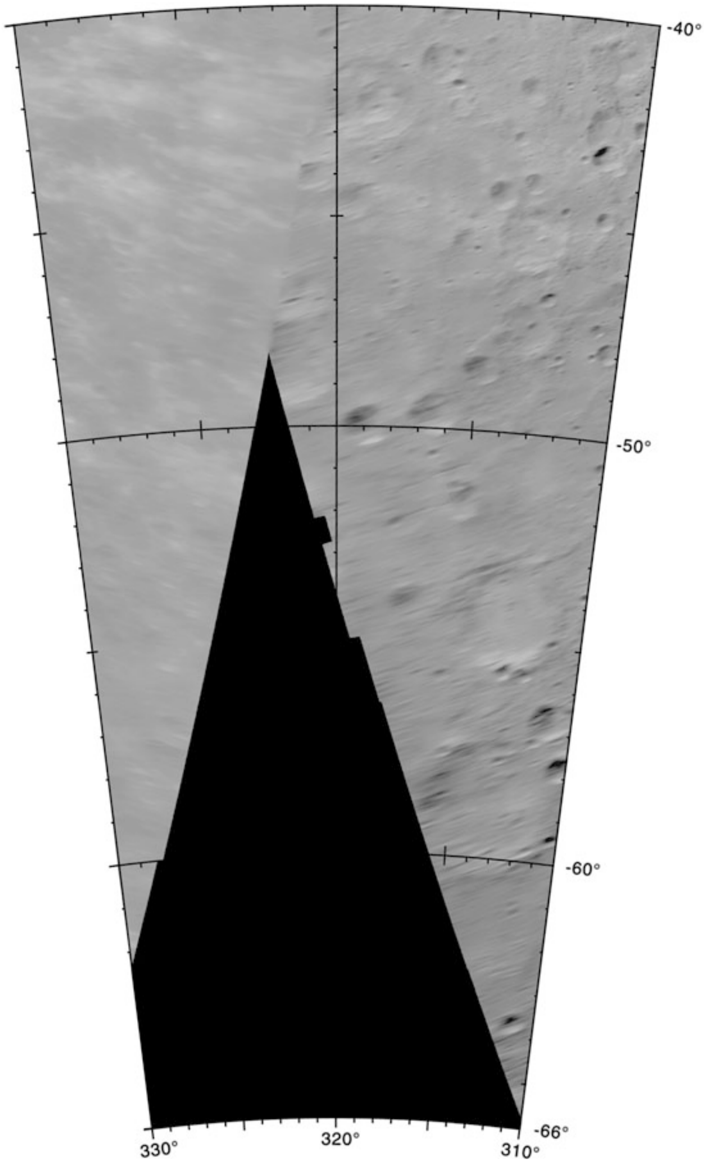
$(270^\circ < \lambda < 290^\circ,\ -21^\circ > \phi > -40^\circ)$

Courtesy of USGS Astrogeology Science Center

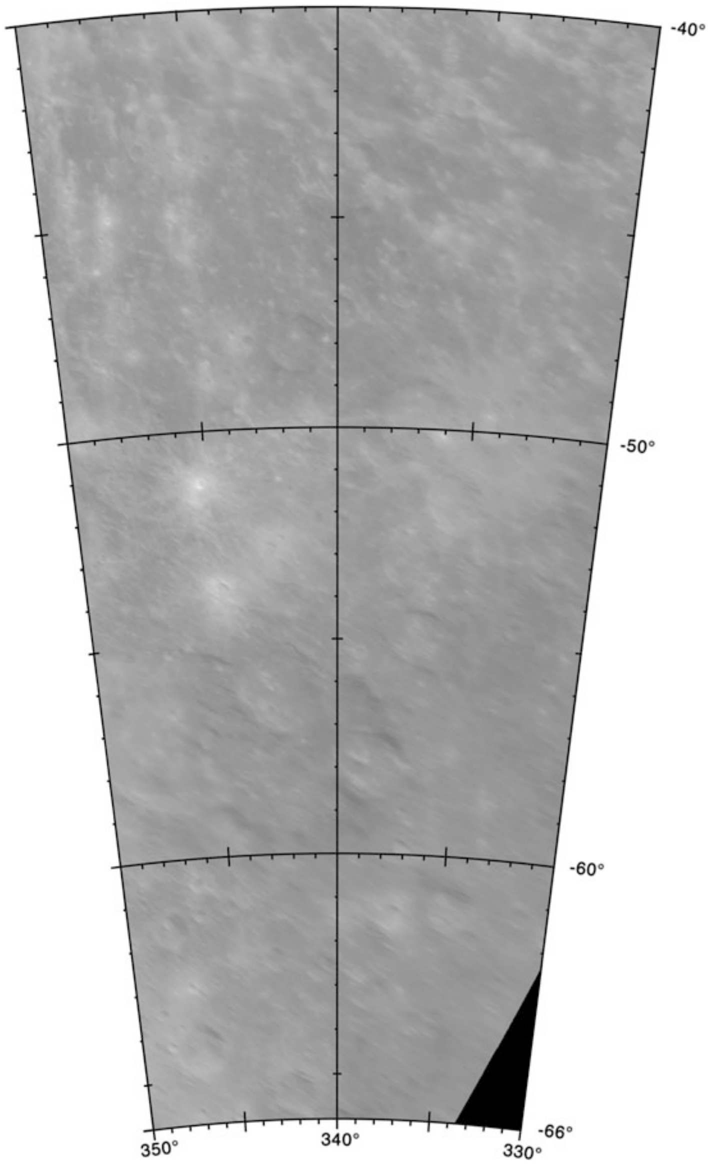
http://planetarynames.wr.usgs.gov/images/h-14.pdf



Map H-14-2: Debussy Quadrangle
($290° < \lambda < 310°$, $-21° > \phi > -40°$)
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-14.pdf



Map H-14-3: Debussy Quadrangle
$(310° < \lambda < 330°,\ -21° > \phi > -40°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-14.pdf

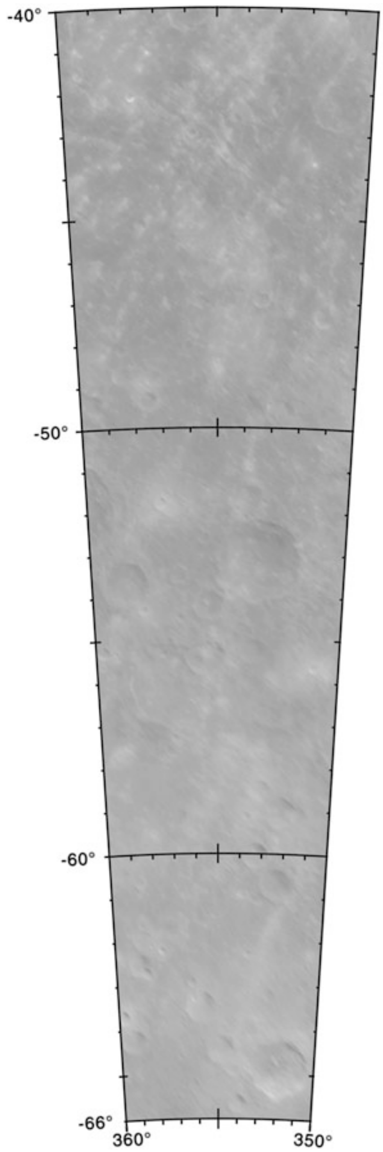


Map H-14-4: Debussy Quadrangle

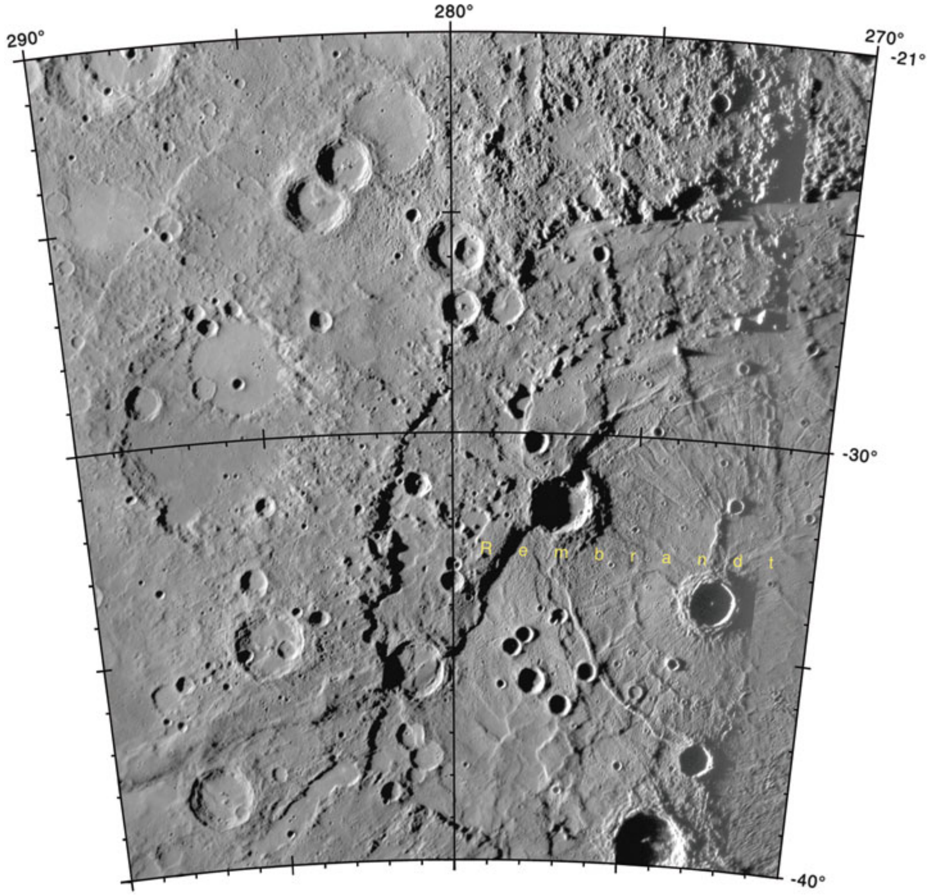
$(330° < \lambda < 350°,\ -21° > \phi > -40°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-14.pdf



Map H-14-5: Debussy Quadrangle
$(350° < \lambda < 360°,\ -21° > \phi > -40°)$
Courtesy of USGS Astrogeology Science Center
http://planetarynames.wr.usgs.gov/images/h-14.pdf

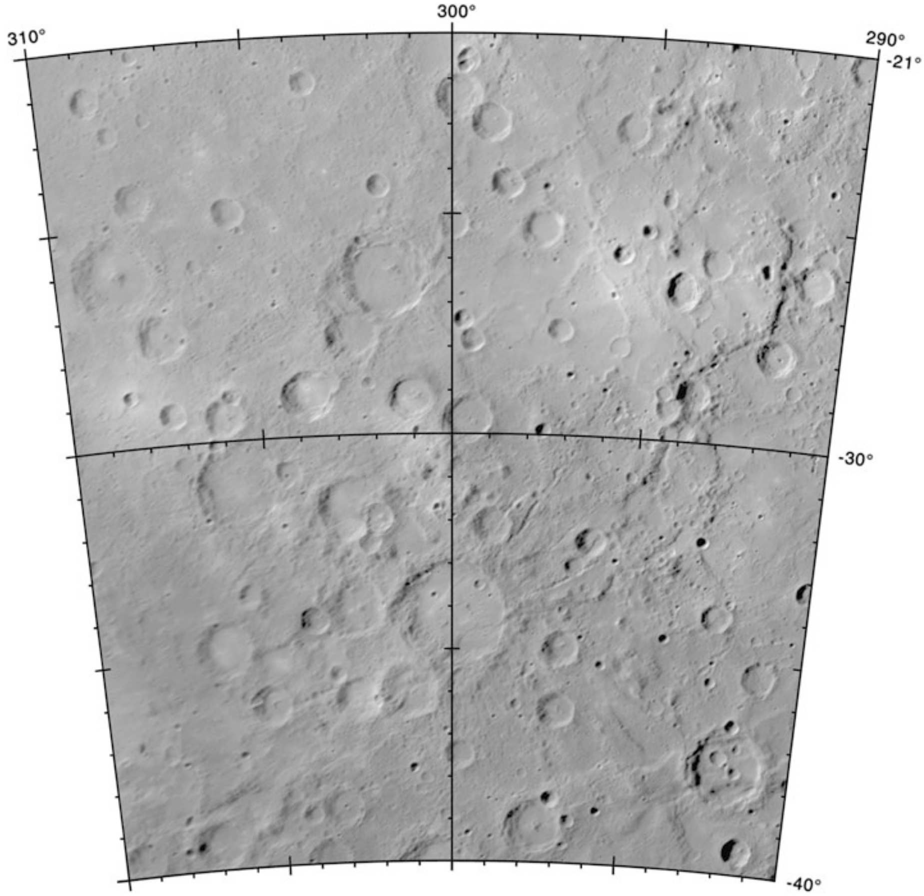


Map H-14-6: Debussy Quadrangle

$(270° < \lambda < 290°,\ -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-14.pdf

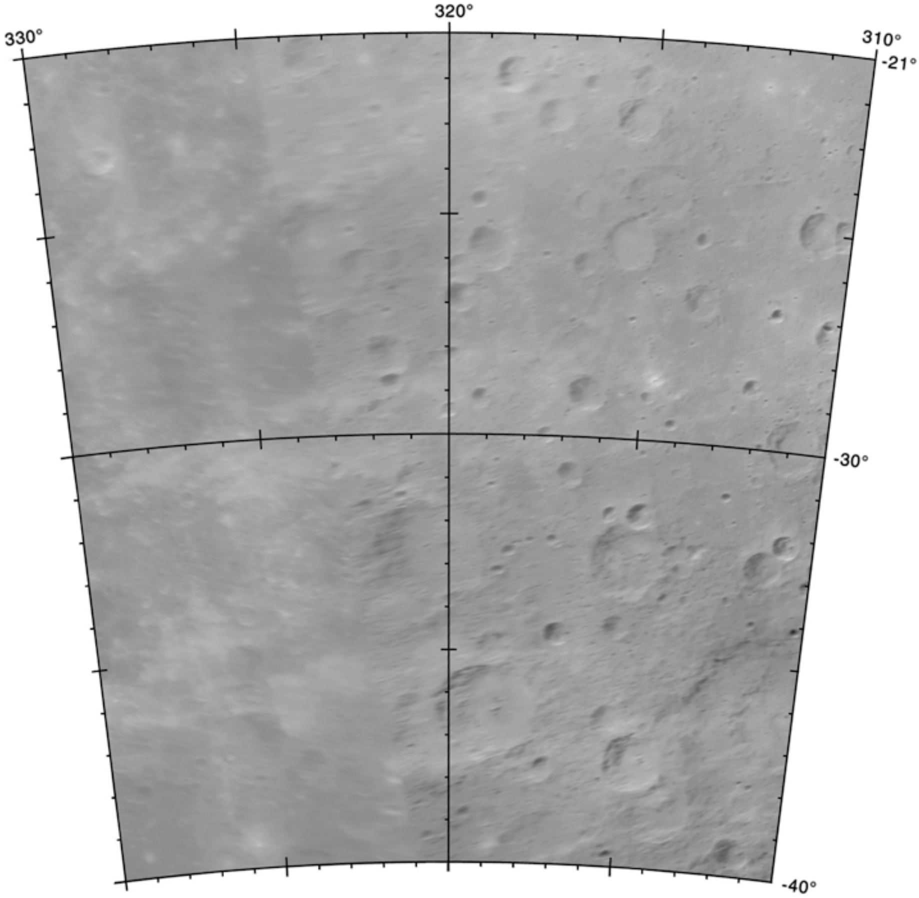


Map H-14-7: Debussy Quadrangle

$(290^\circ < \lambda < 310^\circ,\ -40^\circ > \phi > -66^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-14.pdf

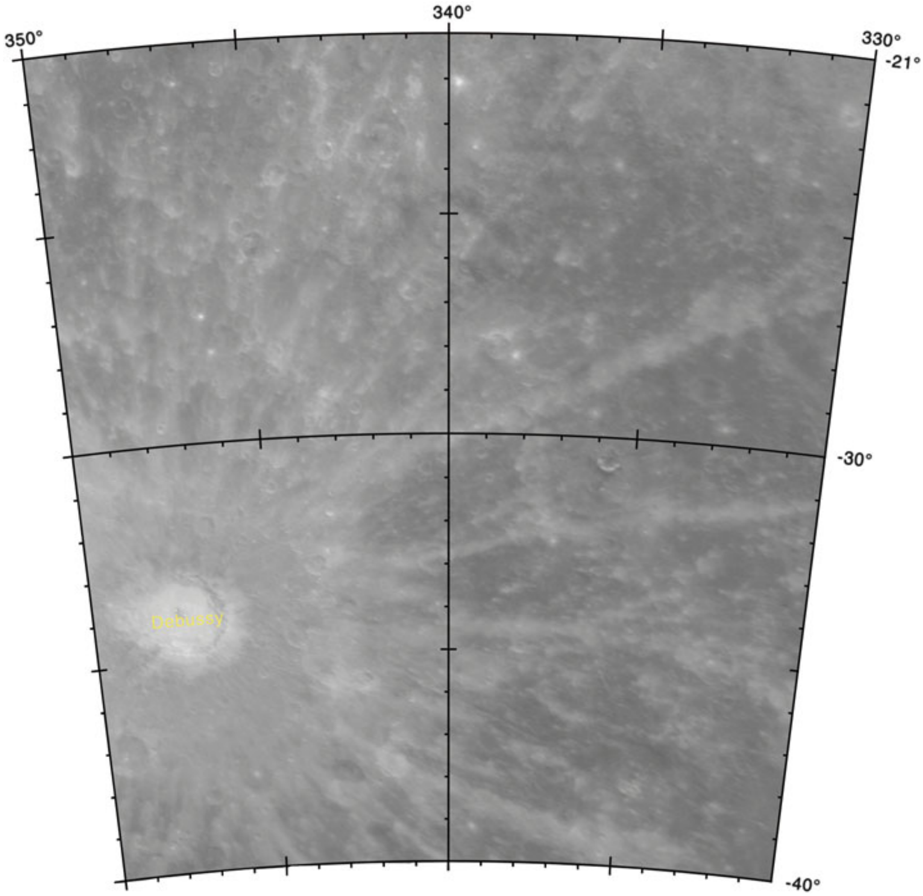


Map H-14-8: Debussy Quadrangle

$(310° < \lambda < 330°,\ -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-14.pdf

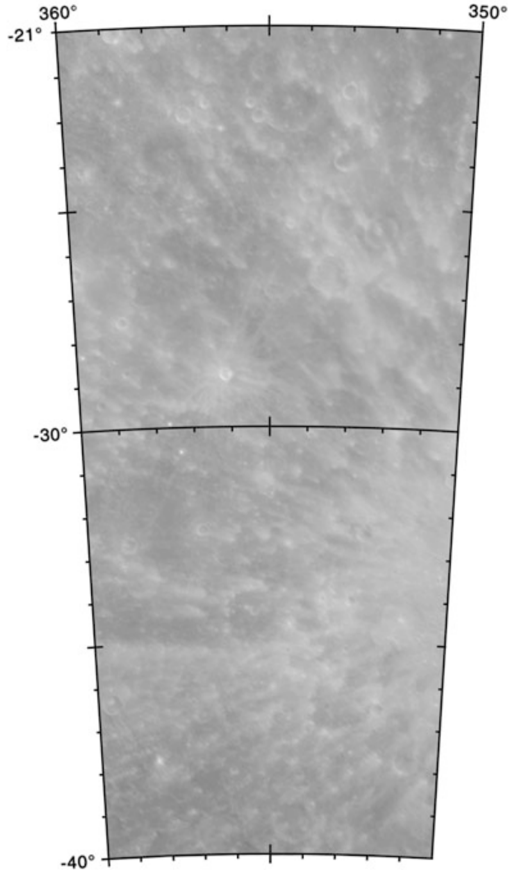


Map H-14-9: Debussy Quadrangle

$(330° < \lambda < 350°, -40° > \phi > -66°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-14.pdf

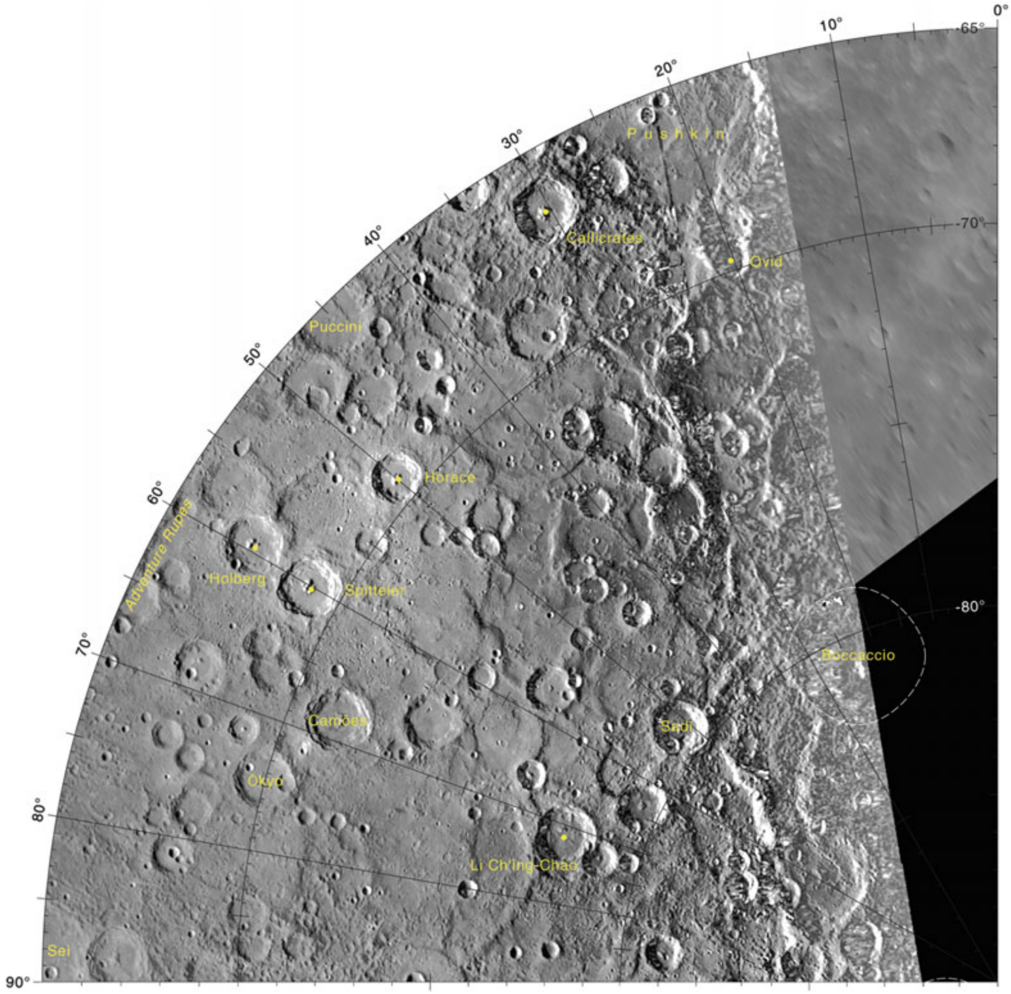


Map H-14-10: Debussy Quadrangle

($350° < \lambda < 360°$, $-40° > \phi > -66°$)

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-14.pdf

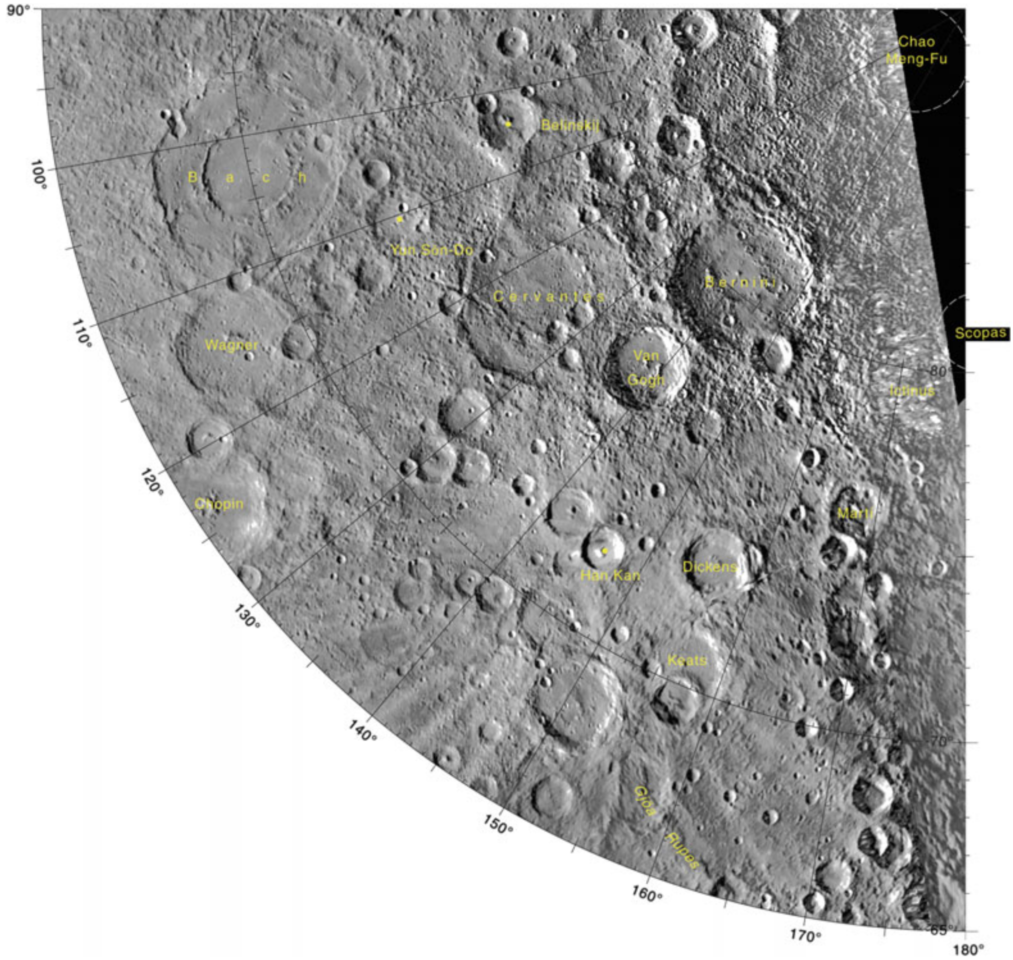


Map H-15-1: Bach Quadrangle

$(0° < \lambda < 90°,\ -65° > \phi > -90°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-15.pdf

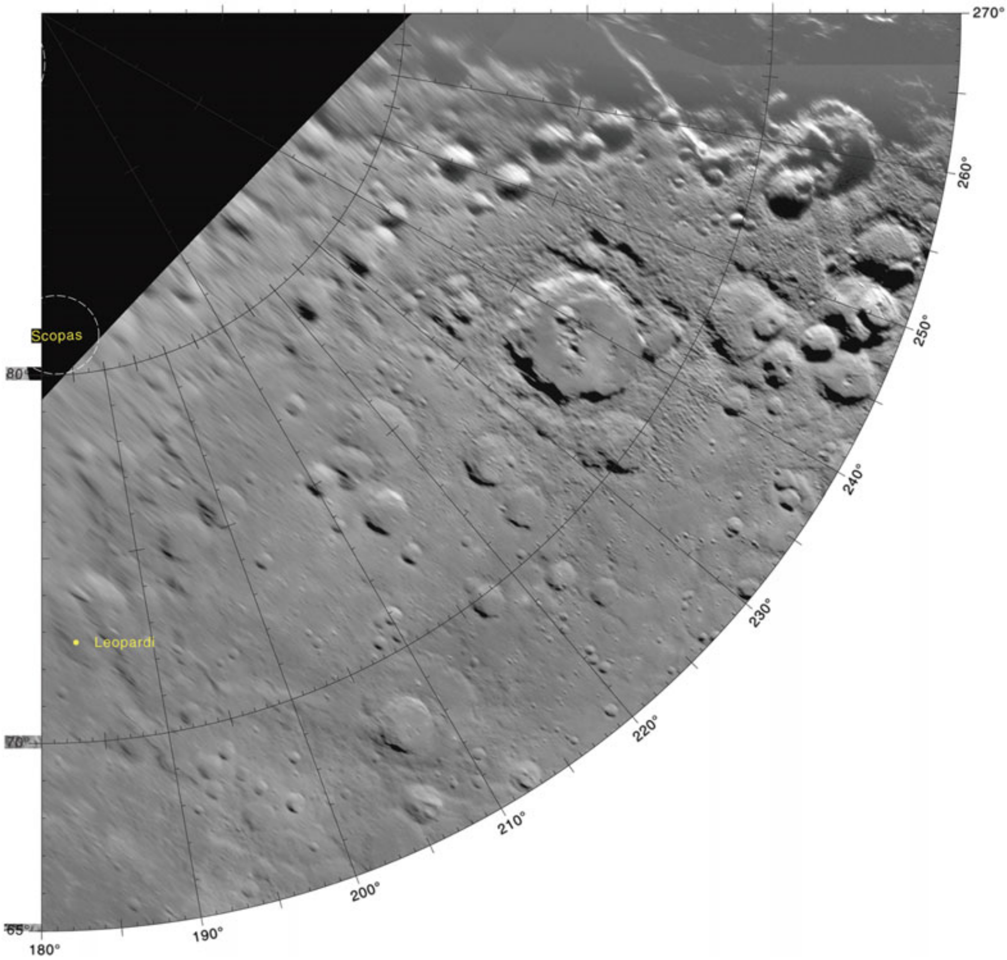


Map H-15-2: Bach Quadrangle

$(90^\circ < \lambda < 180^\circ, -65^\circ > \phi > -90^\circ)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-15.pdf

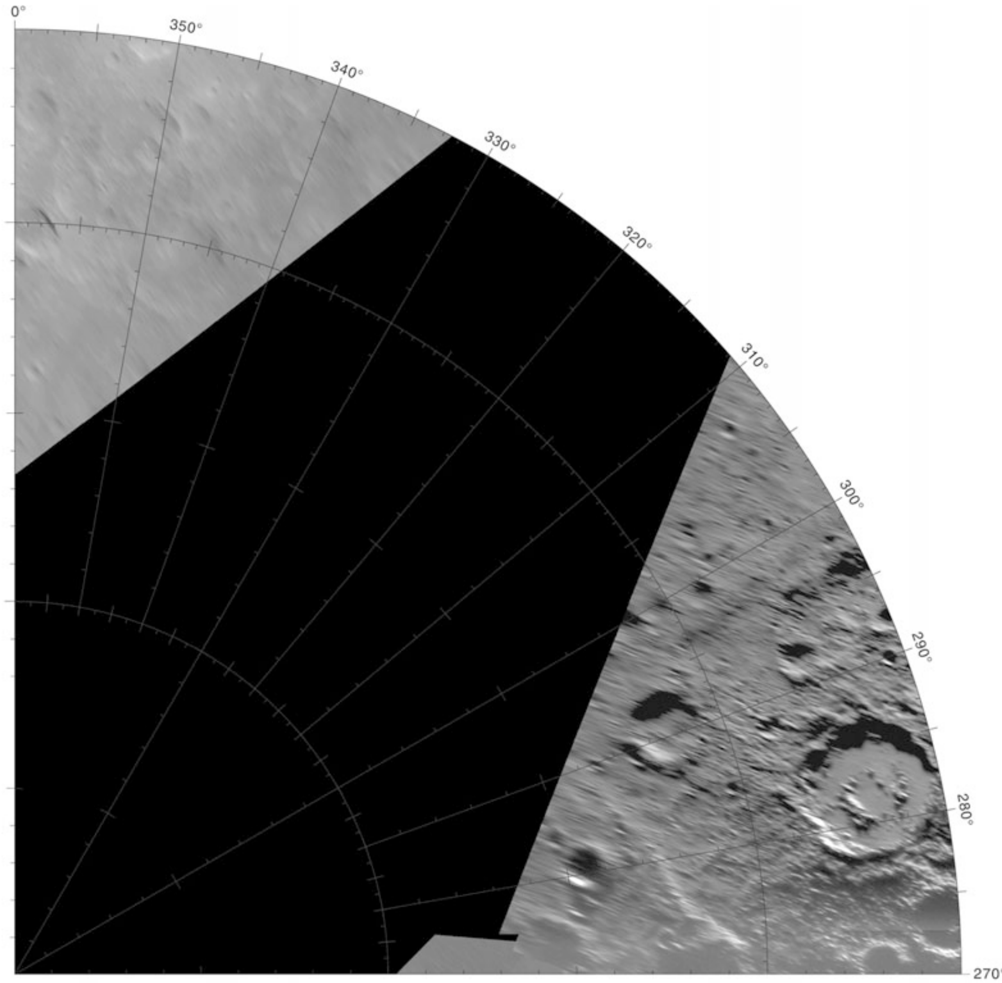


Map H-15-3: Bach Quadrangle

$(180° < \lambda < 270°,\ -65° > \phi > -90°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-15.pdf



Map H-15-4: Bach Quadrangle

$(270° < \lambda < 360°,\ -65° > \phi > -90°)$

Courtesy of USGS Astrogeology Science Center

http://planetarynames.wr.usgs.gov/images/h-15.pdf

Appendix 1

IAU Mercurian Nomenclature

1. IAU Nomenclature Rules

Since its inception in Brussels in 1919 [1], the International Astronomical Union (IAU) has gradually developed a planetary nomenclature system that has evolved from a purely classically based system into a quite sophisticated attempt to broaden the cultural base of the names approved for planetary bodies and surface features. At present, name selection is guided by 11 rules (quoted verbatim below) in addition to conventions decided upon by nomenclature task groups for individual Solar System bodies. The general rules are as follows[1]:

1. Nomenclature is a tool and the first consideration should be to make it simple, clear, and unambiguous.
2. In general, official names will not be given to features whose longest dimensions are less than 100 metres, although exceptions may be made for smaller features having exceptional scientific interest.
3. The number of names chosen for each body should be kept to a minimum. Features should be named only when they have special scientific interest, and when the naming of such features is useful to the scientific and cartographic communities at large.
4. Duplication of the same surface feature name on two or more bodies, and of the same name for satellites and minor planets, is discouraged. Duplications may be allowed when names are especially appropriate and the chances for confusion are very small.
5. Individual names chosen for each body should be expressed in the language of origin. Transliteration for various alphabets should be given, but there will be no translation from one language to another.
6. Where possible, the themes established in early solar system nomenclature should be used and expanded on.
7. Solar system nomenclature should be international in its choice of names. Recommendations submitted to the IAU national committees will be considered, but final selection of the names is the responsibility of the International Astronomical Union. The WGPSN strongly supports equitable selection of names from ethnic groups/countries on each map; however, a higher percentage of names from the country planning a landing is allowed on landing site maps.
8. No names having political, military or religious significance may be used, except for names of political figures prior to the nineteenth century.

[1]Reproduced with the kind permission of the IAU and the USGS Astrogeology Science Center (`http://planetarynames.wr.usgs.gov/Page/Rules`). Retrieved 2011 July 26.

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2,

9. Commemoration of persons on planetary bodies should not normally be a goal in itself, but may be employed in special circumstances and is reserved for persons of high and enduring international standing. Persons being so honored must have been deceased for at least three years.
10. When more than one spelling of a name is extant, the spelling preferred by the person, or used in an authoritative reference, should be used. Diacritical marks are a necessary part of a name and will be used.
11. Ring and ring-gap nomenclature and names for newly discovered satellites are developed in joint deliberation between WGPSN and IAU Commission 20. Names will not be assigned to satellites until their orbital elements are reasonably well known or definite features have been identified on them.

2. Naming Conventions

In addition to these rules, individual task groups take the following guidelines into account[2]:

1. Names for all planetary features include a descriptor term, with a few exceptions. For craters, the descriptor term is implicit. Some features named on Io and Triton do not carry a descriptor term because they are ephemeral.
2. In general, the naming convention for a feature type remains the same regardless of its size. Exceptions to this rule are channels (valles) on Mars and craters on the Moon, Mars, and Venus; naming conventions for these features differ according to size. The categories for naming features on each planet or satellite (and the exceptions) are listed in Categories for Naming Features on Planets and Satellites. One feature classification, regio, was originally used on early maps of the Moon and Mercury (drawn from telescopic observations) to describe vague albedo features. It is now also used to delineate a broad geographic region.
3. Named features on bodies so small that coordinates have not yet been determined are identified on drawings or images of the body that are included in the IAU Transactions volume of the year when the names were adopted. Satellite rings and gaps in the rings are named for scientists who have studied these features; drawings that show these names are also included in the pertinent Transactions volume. Names for atmospheric features are informal at present; a formal system will be chosen in the future.
4. The boundaries of many large features (such as terrae, regiones, planitiae, and plana) are not topographically or geomorphically distinct; the coordinates of these features are identified from an arbitarily chosen center point. Boundaries (and thus coordinates) may be determined more accurately from geochemical and geophysical data obtained by future missions.

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[2]Reproduced with the kind permission of the IAU and the USGS Astrogeology Science Center (http://planetarynames.wr.usgs.gov/Page/Rules). Retrieved 2011 July 26.

5. During active missions, small surface features are often given informal names. These may include landing sites and small topographic features, such as craters, hills, and rocks. Such names will not be given official status by the IAU, except as provided for by Rule 2 above. As for the larger objects, official names for any such small features would have to conform to established IAU rules and categories.

   When a satellite has been discovered through the efforts of a large scientific team, the list of individual team members may be too long to include all contributors. In such cases, credit for the discovery will go to the science team.

2.1. IAU Descriptor Terms

Seven types of descriptor terms (types of surface features) are used in Mercurian nomenclature: craters (circular depressions whose boundaries are marked by elevated ramparts), *dorsa* (ridges), *fossae* (long, narrow depressions), *montes* (mountains), *planitiae* (extensive low plains), *rupēs* (scarps) and *valles* (channels). Lowell [2,3,4,5] introduced over two dozen *regiones*, which he recorded as streak-like markings similar to those he thought that he saw on Mars. Since Lowell's *regiones* are spurious, they are mentioned here (and listed in the Gazetteer section) for completeness and historical interest only. Not included in the IAU nomenclature system, but nevertheless still very much a part of Mercurian cartography, are the *solitudines* ('deserts', denoting various light and dark albedo features on the Mercurian surface), introduced by Antoniadi [6].

2.2. IAU Categories

Under the IAU planetary nomenclature system each planet is allotted a set of themes ('categories') for the naming of its surface features. In the case of Mercury, the IAU naming conventions are listed in Table 1. Craters are named after distinguished deceased artists, musicians and writers who have been recognized for more than 50 years as having made significant contributions in their fields. Dorsa commemorate deceased scientists who have contributed work on Mercury. Fossae bear the names of culturally significant works of architecture. Planitiae are given names for Mercury in various languages. Rupēs are named after ships of discovery or vessels that have participated in scientific expeditions and valles after radio observatories.

Although not included in the USGS Gazetteer of Planetary Nomenclature, the solitudines ('deserts') are still employed (but modified in Dollfus's map; see Fig. 3).

3. How Names Are Approved

Anyone may suggest a name for a planetary surface feature for consideration by the relevant task group. Names that successfully meet TG criteria

are forwarded to the IAU's Working Group for Planetary System Nomenclature (WGPSN). Once the WGPSN has given its approval a name is entered into the U.S. Geological Survey Gazetteer of Planetary Nomenclature (which is the IAU's official planetary nomenclature database) and may be used in maps and publications produced by the scientific community. Themes (called 'categories' in the IAU nomenclature system) are considered by members of the WGPSN task group concerned as soon as new images of a planetary surface are received. Subsequently, planetary scientists and cartographers may continue to suggest new names for features as higher resolution images become available.

4. The Working Group for Planetary System Nomenclature (WGPSN)

The present membership of the Working Group for Planetary System Nomenclature is listed in Table 2.

5. The Task Group for Mercury Nomenclature

The current membership of the Task Group for Mercury Nomenclature is listed in Table 3.

6. IAU Codification Parameters

Most of the entries in the gazetteer section end with an IAU codification in the format $a : b : c : d : e : f : g : [h]$, . the parameter values being defined as follows:

- a: a one-letter code for the parent planet (see Table 4)
- b: a two-letter code for a satellite (see note below)
- c: a two-letter code for feature type (Table 5)
- d: a two-letter code for continent (Table 6)
- e: a two-letter code for ethnicity (Table 7)
- f: a one-digit numeral (1–7) for IAU status (see Table 8)
- g: a four-digit year of acceptance by the IAU (before mid-September 2006); date in format YYYY Mon DD thereafter
- h: a numbered bibliographic source in brackets

Notes

Parameter *b* does not apply to Mercury, which has no satellites, so this part of the code contains an en-dash.

Parameter *c* represents the **descriptor term**. A list of descriptor terms used for Mercurian nomenclature is given in Table 5.

Parameter *d* indicates the geographical origin of the name (by continent), as shown in Table 6.

Parameter *e* indicates either a country or ethnic group, as listed in Table 7. Note that the codes are not unique to a given country or ethnicity; 'SY', for example, applies to both Syria (Asia) and Scythia (Europe), so the continent code must always be given with the country/ethnicity code to avoid ambiguity.

Parameter *f* denotes the status of a name within the IAU nomenclature scheme. As many as seven levels of IAU approval have been used over time (see Table 8). Note that levels 1–4 are not currently used. Prior to mid-September 2006 only the year of approval (parameter g) is listed by the USGS Gazetteer of Planetary Nomenclature.[3] From mid-September 2006 onwards the full date of approval is listed in that website in the format YYYY-MM-DD; however, in this work we use the convention YYYY-Mon-DD in order to avoid possible confusion of months and days for DD < 12. For example, '2010-03-03' in the USGS website is listed in this gazetteer as '2010 Mar 03'.

A **question mark** following a parameter indicates a possible error in the USGS data base.

7. Mercurian Nomenclature Update [7]

This edition of the gazetteer is complete up to 2012 December 19. Since then the following additions and modifications have been made to the USGS data base:

i. On Friday, 2013 March 15, new names were approved for the following nine craters: *Alver, Donetaitis, Flaiano, Hurley, L'Engle, Lovecraft, Pahinui, Petöfi* and *Roerich*.
ii. On Tuesday, 2013, March 26, the WGPSN approved the following changes to the Mercurian nomenclature system:
    a. *Arecibo Vallis, Goldstone Vallis, Haystack Vallis* have been changed to *Arecibo Catena, Goldstone Catena* and *Haystack Catena*, respectively.
    b. The name *Simeiz Vallis* has been dropped.
    c. For Mercury, *catenae* now commemorate radio telescope facilities, and *valles* are now the theme for abandoned settlements, towns and cities in antiquity.
iii. On Tuesday, 2013 April 30, new names were approved for the following valles: *Angkor Vallis, Cahokia Vallis, Caral Vallis, Paestum Vallis* and *Timgad Vallis*.
iv. On Monday, 2013 June 3, the following new *rupēs* were approved for Mercury: *Alvin Rupes, Belgica Rupes, Calypso Rupes, Carnegie*

[3] http://planetarynames.wr.usgs.gov/

Rupes, Duyfken Rupes, Eltanin Rupes, Enterprise Rupes, Nautilus Rupes, Palmer Rupes and *Terror Rupes.*

v. On Thursday, 2013 June 13, the new crater name *Duccio* was approved.

vi. On Monday, 2013 June 17, the following nine new crater names were approved: *Bechet, Damer, David, Erté, Larrocha, Laxness, Monk, Rikyū* and *Varma.*

vii. On Tuesday, 2013 June 25, the new crater name *Fuller* was approved.

Full coverage of these and any future additions to the USGS data base must wait until the next edition of this volume.

Table 1. Categories Pertinent to Mercury

Descriptor term	*Description*
Craters	Deceased artists, musicians and writers of established reputation who have made significant contributions in their fields and whose importance has been recognized for at least 50 years
Dorsa	Deceased scientists who have contributed to the study of Mercury
Fossae	Culturally significant works of architecture
Montes	The word for 'hot' in various languages
Planitiae	Names for the god or planet Mercury in various languages
Regiones	Occasionally used to denote vague albedo features
Rupēs	Ships that have made voyages of discovery or which have formed part of a scientific expedition
Solitudines[a]	Albedo features
Valles	Radio observatories

[a]Not a recognized IAU descriptor term but still used in cartography.

Table 2. CURRENT MEMBERSHIP OF THE WGPSN[a]

Position	*Name*	*Country represented*
Chair	R. Schulz	Netherlands
Member	K. Aksnes	Norway
Member	J. Blue	USA
Member	G. A. Burba	Russia
Member	G. Consolmagno	Vatican City State
IAU Commission 16 representative	M. Lemmon	USA
Member	R. Lopes	UK
Member	P. Masson	France
Member	B. A. Smith	USA
IAU Division F representative	G. Valsecchi	Italy
Minor Planet Center and IAU Small Bodies Nomenclature representative	G. Williams	USA
Member	C. Wood	USA

[a]http://planetarynames.wr.usgs.gov/Page/Members, retrieved 2013 August 29.

Table 3. CURRENT MEMBERSHIP OF THE TASK GROUP FOR MERCURY NOMENCLATURE[a]

Position	*Name*	*Country represented*
Chair	P. Masson	France
Member	D. B. Campbell	USA
Member	A. C. Cook	UK
Member	K. Kuramoto	Japan
Member	J. Rodionova	Russia
Member	R. Ziethe	Netherlands

[a]http://planetarynames.wr.usgs.gov/Page/Members, retrieved 2013 August 29.

Table 4. IAU CODES FOR PRIMARY PLANETS AND ASTEROIDS

Code	*Body*	*Code*	*Body*
A	asteroid	N	Neptune
E	Earth	S	Saturn
H	Mercury (Hermes)	U	Uranus
J	Jupiter	V	Venus
M	Mars		

Table 5. IAU descriptor term codes for Mercury

Code	*Descriptor term*	*Code*	*Descriptor term*
AL	albedo feature	PL	planitia
AA	crater	RE	regio
DO	dorsum	RU	rupes
FO	fossa	VA	vallis
MO	mons		

Table 6. IAU continent codes

Code	*Continent*	*Code*	*Continent*
AF	Africa feature	NA	North America
AN	Antarctica	OC	Oceania
AS	Asia	SA	South & Central America
EU	Europe		

Table 7.: IAU country and ethnic group codes

Africa (AF)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	GH	Ghana	NM	Namibia
AL	Algeria	GU	Guinea	PY	Pygmy
AN	Angola	HO	Hottentot	RW	Rwanda
BA	Bantu	IC	Ivory Coast	SA	South Africa
BE	Benin	KY	Kenya	SE	Semitic
BF	Burkina Faso (Upper Volta)	LB	Libya	SL	Sierra Leone
		LE	Lesotho	SN	Senegal
BH	Bushongo	LI	Liberia	SO	Somalia
BR	Burundi	MA	Mauritius	SU	Sudan
BT	Botswana	MB	Mbundu	SW	Swaziland
BU	Bushman	MD	Madagascar	SY	Rep. Seychelles
CH	Rep. Chad	ME	Mende	TA	Tanzania
CI	Canary Is.	ML	Mali	TN	Tunisia
CR	Cameroon	MN	Mande	TO	Togo
DH	Dahomean	MR	Morocco	UG	Uganda
EG	Egypt	MU	Mauritania	YA	Yao
ET	Ethiopia	MW	Malawi	ZA	Zaire
GA	Gambia	MZ	Mozambique	ZI	Zimbabwe
GB	Gabon	NG	Niger	ZM	Zamba
GC	Gold Coast	NI	Nigeria	ZU	Zulu

Table 7.: IAU COUNTRY AND ETHNIC GROUP CODES

Antarctica (AN)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	AM	America (Antarctica)	FR	France (Antarctica)

Asia (AS)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	IR	Iran	PE	Persian
AB	Assyro–Babylonian	IS	Israel	PH	Philippines
AF	Afghanistan	IT	Itelmen	PK	Pakistan
AK	Akkadian (Accadian)	JA	Japan	PO	Phoenician
		JO	Jordan	SA	Sanskrit
AL	Altai	JW	Jewish	SB	Saudi Arabia
AM	Armenian	KA	Kashmir	SC	Scythian
AR	Arabian	KR	Korea	SE	Semitic
AY	Assyrian	KT	Ket	SI	Siberia
AZ	Azerbaijan	KU	Kuwait	SR	Sri Lanka
BA	Bangladesh	KY	Kyrgyzstan	SU	Sumerian
BH	Bhutan	KZ	Kazakhstan	SY	Syria
BR	Buriat	LA	Laos	TB	Tibet
BU	Burma	LE	Lebanon	TH	Thailand
BY	Babylon	MA	Malaysia	TJ	Tajik
CH	China	ME	Mesopotamian	TK	Turkmenistan
CM	Cambodia	MG	Monguor	TN	Tungu
CU	Chukchi	MO	Mongolia	TU	Turkey
EL	Elamite	MS	Mansi	TV	Tuva
EV	Evenki	NA	Nanai	TW	Taiwan
GE	Georgia	MY	Minyong	UL	Ulci
HE	Hebrew	NE	Nepal	UR	Urartu
HI	Hindu	NG	Neghidhian	UZ	Uzbekistan
ID	Indonesian	NS	Nganasan	VT	Vietnam
IN	India	OM	Oman	YE	Yemen
IQ	Iraq	OS	Ostyak	YK	Yakutian

Table 7.: IAU COUNTRY AND ETHNIC GROUP CODES

Europe (EU)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	GB	Great Britain	NS	Norse
AL	Albania	GE	Germany	OG	Ostrogoth
AN	Andorra	GL	Greenland	OS	Oscan
AS	Austria	GR	Greek	PG	Portugal
BE	Belgium	GY	Gypsy	PO	Poland
BH	Bosnia-Herzogovina	HU	Hungary	RM	Roman
BL	Belarus	IC	Iceland	RO	Romania
BS	Bashkir	IR	Ireland	RU	Russia
BU	Bulgaria	IT	Italy	SC	Scotland
BZ	Byzantine	KA	Karelia	SD	Scandinavia
CC	Caucasus	KL	Kalmyk	SI	Slovenia
CE	Celtic	KO	Komi	SL	Slavic
CH	Chuvash	LA	Latin	SM	San Marino
CR	Croatia	LE	Liechtenstein	SO	Soviet
CY	Cyprus	LI	Lithuania	SP	Spain
CZ	Czechoslovakia	LP	Lapp	SV	Slovakia
DE	Denmark	LU	Luxembourg	SW	Sweden
DU	Netherlands (Dutch)	LV	Latvia	SY	Scythia
EK	Eskimo (Greenland)	MA	Macedonia	SZ	Switzerland
EN	England	MD	Moldova	TT	Tartar
ES	Estonia	ML	Malta	TU	Teutonic
FI	Finland	MO	Mordvinian	UD	Udmurtian
FL	Flemish	MR	Mari	UK	Ukraine
FR	France	NO	Norway	WA	Wales
				YU	Yugoslavia

North America (NA)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	CR	Creek	OS	Osage
DA	Dakota	CU	Chumash	PE	Pequot
AB	Aruba	CY	Cheyanne	PO	Polawatomi
AL	Algonquin	DA	Dakota	PU	Pueblo
AM	American	DO	Dominica	PW	Pawnee
AR	Arkara	ES	Eskimo	SA	Salish
AU	Aleutian	HO	Hopi	SE	Seneca
BL	Blackfoot	IR	Iroquois	SH	Shoshoni
CA	Canada	KL	Klamath	SX	Sioux
CE	Cherokee	LA	Lakota	TL	Tingit
CH	Chickasaw	MA	Mandan	US	United States
CI	Chinook	ME	Mexico	ZU	Zuni
CO	Choktaw	NV	Navajo		

Table 7.: IAU country and ethnic group codes

Oceania (OC)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	MA	Marquesas Is.	PA	Rep. Palau
AU	Australia	MC	Micronesia	PN	Papua New Guinea
CI	Caroline Is.	ME	Melanesia	PO	Polynesia
CO	Cook Is.	MI	Marshall Is.	SA	Samoa
FJ	Fiji	NA	Nauru	SI	Society Is.
GM	Guam	NB	New Britain	TO	Tonga
GU	New Guinea	NC	New Caledonia	TU	Toamotu
HA	Hawaii	NZ	New Zealand	VA	Vanuatu

South and Central America (SA)

Code	*Ethnicity*	*Code*	*Ethnicity*	*Code*	*Ethnicity*
–	unknown	DR	Dominican Rep.	NI	Nicaragua
AC	Auracanian	EC	Ecuador	PA	Paraguay
AR	Argentina	ES	El Salvador	PE	Peru
AZ	Aztec	FG	French Guiana	PM	Panama
BB	Barbados	FI	Falkland Is.	PR	Puerto Rico
BO	Bolivia	GR	Grenada	RR	Bororo
BR	Brazil	GU	Guatemala	SU	Suriname
CH	Chile	GY	Guyana	UR	Uruguay
CI	Chimalateco	HA	Haiti	VE	Venezuela
CO	Colombia	HO	Honduras	VI	Virgin Is.
CR	Costa Rica	IN	Inca		
CU	Cuba	JM	Jamaica		
DA	Netherland (Dutch) Antilles	MY	Mayan		
		NA	Nahuatl		

Source: http://planetarynames.wr.usgs.gov/Page/Specifics. Retrieved 1 August, 2011.

Table 8. Levels of IAU approval

Code	*Approval Level*
1	Proposed
2	Approved by Task Group
3	Approved by the Working Group for Planetary System Nomenclature
4	Approved by the IAU's Executive Committee
5	Adopted by the IAU
6	Dropped, no longer in use
7	Never approved by the IAU

Appendix 2

Non-roman Alphabets

Arabic

Letter				Name	Transliteration
Isolated	*Initial*	*Medial*	*Final*		*(DIN)*
ا			ـا	الف (alif)	**ā**
ب	بـ	ـبـ	ـب	باء (bā’)	**b**
ت	تـ	ـتـ	ـت	تاء (tā’)	**t**
ث	ثـ	ـثـ	ـث	ثاء (ṯā’)	**ṯ**
ج	جـ	ـجـ	ـج	جيم (jīm)	**ǧ**
ح	حـ	ـحـ	ـح	حاء (ḥā’)	**ḥ**
خ	خـ	ـخـ	ـخ	خاء (ḵā’)	**ḫ**
د			ـد	دال (dāl)	**d**
ذ			ـذ	ذال (ḏāl)	**ḏ**
ر			ـر	راء (rā’)	**r**
ز			ـز	زاء (zā’)	**z**
س	سـ	ـسـ	ـس	سين (sīn)	**s**
ش	شـ	ـشـ	ـش	شين (šīn)	**š**
ص	صـ	ـصـ	ـص	صاد (ṣād)	**ṣ**
ض	ضـ	ـضـ	ـض	ضاد (ḍād)	**ḍ**
ط	طـ	ـطـ	ـط	طاء (ṭā’)	**ṭ**
ظ	ظـ	ـظـ	ـظ	ظاء (ẓā’)	**ẓ**
ع	عـ	ـعـ	ـع	عين (‘ayn)	**‘**
غ	غـ	ـغـ	ـغ	غين (g̣ayn)	**g̣**
ف	فـ	ـفـ	ـف	فاء (fā’)	**f**
ق	قـ	ـقـ	ـق	قاف (qāf)	**q**
ك	كـ	ـكـ	ـك	كاف (kāf)	**k**
ل	لـ	ـلـ	ـل	لام (lām)	**l**
م	مـ	ـمـ	ـم	ميم (mīm)	**m**
ن	نـ	ـنـ	ـن	نون (nūn)	**n**
ه	هـ	ـهـ	ـه	هاء (hā’)	**h**
و			ـو	واو (wāw)	**w**,**ū**
ي	يـ	ـيـ	ـي	ياء (yā’)	**y**,**ī**

Notes. — 1. All Arabic names in this gazetteer are given unvocalized; i.e. the three short vowels (a, i and u) are not shown in the Arabic spelling, as is the

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2,

norm in Modern Standard Arabic (MSA) printing (e.g. Schulz, Krahl & Reuschel 2000).

2. Long vowels are always indicated in unvocalized script. The long vowels of MSA are: *'alif* (ا), *'alif maqṣūrah* (ى), *wāw* (و) and *yā'* (ي). The short vowels that would accompany these letters in vocalized text are implied when unvocalized.

3. *Gemination (consonant doubling):* The doubling of consonants is represented by the *šaddah* (شدّه), a 'w'-shaped placed over the consonant to be doubled.

4. *The hamzah:* This symbol (ء) represents a glottal stop, an important phoneme in Arabic, and can be written either alone (rarely) or (more usually) acting as a diacritic symbol when combined with another letter:

- أ and إ : above or under an *'alif* to represent the glottal stop (preceding an initial short *a* or *i* respectively);
- ؤ : above a *wāw*; or
- ئ : above a dotless *yā'* (the *yā' hamzah*).

5. Three of the standard letters are modified to produce the following common variants:

- *'alif maddah* (transliterated *'ā*): آ (independent), آ (initial), ﺂ (medial), ﺂ (final);
- *tā' marbūṭah* (transliterated *a*): ة (independent), ﺔ (final)—always at the end of a word; and
- *'alif maqṣūrah* (transliterated ā or *y*): ى (independent), ﻰ (final).

6. *Ligatures:* In Arabic script, there are a number of combinations of letters that are joined to form so-called *ligatures*, the only compulsory one being ل + ا to produce لا (independent), ﻼ (intermediate and final).

Attic Greek

Letter		*Name*	*Transliteration*	*Letter*		*Name*	*Transliteration*
Α	α	alpha	**a**	Ν	ν	nu	**n**
Β	β	beta	**b**	Ξ	ξ	xi	**x**
Γ	γ	gamma	**g**	Ο	ο	omicron	**o**
Δ	δ	delta	**d**	Π	π	pi	**p**
Ε	ε	epsilon	**e**	Ρ	ρ	rho	**rh**
Ζ	ζ	zeta	**z**	Σ	σ,ς	sigma	**s**
Η	η	eta	**ē**	Τ	τ	tau	**t**
Θ	ϑ	theta	**th**	Υ	υ	upsilon	**u**
Ι	ι	iota	**i**	Φ	φ	phi	**ph**
Κ	ϰ	kappa	**k**	Χ	χ	chi	**kh**
Λ	λ	lambda	**l**	Ψ	ψ	psi	**ps**
Μ	μ	mu	**m**	Ω	ω	omega	**ō**

Notes. — 1. Initial vowels may be either aspirated or unaspirated. Aspiration is denoted by the symbol ʽ above a lower case vowel (before a capital) and unaspirated vowels carry the symbol ʼ above (if lower case) or before it (if capital). 2. The supposed aspiration of the consonants theta, rho, phi and chi are respected in the transliterations of this gazetteer, as are the distinctions between long/short eta/epsilon and omega/omicron.

The Devanagari Syllabary

Vowels

Letter	*Name*	*Transliteration*	*Letter*	*Name*	*Transliteration*
अ	*a*	**a**	ॠ	*ṝ*	**ṝ**
आ	*ā*	**ā**	ऌ	*ḷ*	**ḷ**
इ	*i*	**i**	ॡ	*ḹ*	**ḹ**
ई	*ī*	**ī**	ए	*e*	**e**
उ	*u*	**u**	ऐ	*ai*	**ai**
ऊ	*ū*	**ū**	ओ	*o*	**o**
ऋ	*ṛ*	**ṛ**	औ	*au*	**au**

Consonants

Letter	*Name*	*Transliteration*	*Letter*	*Name*	*Transliteration*
क	*ka*	**ka**	फ	*pha*	**pha**
ख	*kha*	**kha**	ब	*ba*	**ba**
ग	*ga*	**ga**	भ	*bha*	**bha**
घ	*gha*	**gha**	म	*ma*	**ma**
ङ	*ṇa*	**ṇa**	य	*ya*	**ya**
च	*ca*	**ca**	र	*ra*	**ra**
छ	*cha*	**cha**	ल	*la*	**la**
ज	*ja*	**ja**	व	*va*	**va**
झ	*jha*	**jha**	श	*śa*	**śa**
ञ	*ña*	**ña**	ष	*ṣa*	**ṣa**
ट	*ṭa*	**ṭa**	स	*sa*	**sa**
ठ	*ṭha*	**ṭha**	ह	*ha*	**ha**
ड	*ḍa*	**ḍa**	क़	*qa*	**qa**
ढ	*ḍha*	**ḍha**	ख़	*k̲h̲a*	**k̲h̲a**
ण	*ṇa*	**ṇa**	ग़	*ġa*	**ġa**
त	*ta*	**ta**	ज़	*za*	**za**
थ	*tha*	**tha**	ड़	*ṛa*	**ṛa**
द	*da*	**da**	ढ़	*ṛha*	**ṛha**
ध	*dha*	**dha**	फ़	*fa*	**fa**
न	*na*	**na**	ळ	*ḷa*	**ḷa**
प	*pa*	**pa**			

Conjunct Consonants

क्क	kka	च्छ	ccha	त्त्व	ttva	प्त	pta	श्च्य	ścya
क्ख	kkha	च्छ्र	cchra	त्थ	ttha	प्त्य	ptya	श्न	śna
क्च	kca	च्ञ	cña	त्न	tna	प्न	pna	श्य	śya
क्ण	kṇa	च्म	cma	त्न्य	tnya	प्प	ppa	श्र	śra
क्त	kta	च्य	cya	त्प	tpa	प्म	pma	श्र्य	śrya
क्त्य	ktya	छ्य	chya	त्प्र	tpra	प्य	pya	श्ल	śla
क्त्र	ktra	छ्र	chra	त्म	tma	प्र	pra	श्व	śva
क्त्र्य	ktrya	ज्ज	jja	त्म्य	tmya	प्ल	pla	श्व्य	śvya
क्त्व	ktva	ज्झ	jjha	त्व	tva	प्व	pva	श्श	śśa
क्न	kna	ज्ञ	jña	त्स	tsa	प्स	psa	ष्ट	ṣṭa
क्न्य	knya	ज्ञ्य	jñya	त्स्न	tsna	प्स्व	psva	ष्ट्य	ṣṭya
क्म	kma	ज्म	jma	त्स्न्य	tsnya	ब्घ	bgha	ष्ट्र	ṣṭra
क्य	kya	ज्य	jya	थ्य	thya	ब्ज	bja	ष्ट्र्य	ṣṭrya
क्र	kra	ज्र	jra	द्ग	dga	ब्द	bda	ष्ट्व	ṣṭva
क्र्य	krya	ज्व	jva	द्ग्र	dgra	ब्ध	bdha	ष्ठ	ṣṭha
क्ल	kla	ञ्च	ñca	द्घ	dgha	ब्न	bna	ष्ण	ṣṇa
क्व	kva	ञ्च्म	ñcma	द्घ्र	dghra	ब्ब	bbba	ष्ण्य	ṇya
क्व्य	kvya	ञ्च्य	ñcya	द्द	dda	भ	bha	ष्प	ṣpa
क्ष	kṣa	ञ्छ	ñcha	द्द्य	ddya	ब्भ्य	bbhya	ष्प्र	ṣpra
क्ष्म	kṣma	ञ्ज	ñja	द्ध	ddha	ब्य	bya	ष्म	ṣma
क्ष्य	kṣya	ञ्ज्य	ñjya	द्ध्य	ddhya	ब्र	bra	ष्य	ṣya
क्ष्व	kṣva	ट्ट	ṭṭa	द्न	dna	ब्व	bva	ष्व	ṣva
ख्य	khya	ट्य	ṭya	द्ब	dba	भ्न	bhna	स्क	ska
ख्र	khra	ठ्य	ṭhya	द्भ	dbha	भ्य	bhya	स्ख	skha
ग्य	gya	ठ्र	ṭhra	द्भ्य	dbhya	भ्र	bhra	स्त	sta
ग्र	gra	ड्ग	ḍga	द्म	dma	भ्व	bhva	स्त्य	stya
ग्र्य	grya	ड्ग्य	ḍgya	द्य	dya	म्न	mna	स्त्र	stra
घ्न	ghna	ड्घ	ḍgha	द्र	dra	म्प	mpa	स्त्व	stva
घ्न्य	ghnya	ड्घ्र	ḍghra	द्र्य	drya	म्प्र	mpra	स्थ	stha
घ्म	ghma	ड्ढ	ḍḍha	द्व	dva	म्ब	mba	स्न	sna
घ्य	ghya	ड्म	ḍma	द्व्य	dvya	म्भ	mbha	स्न्य	snya
घ्र	ghra	ड्य	ḍya	ध्न	dhna	म्म	mma	स्प	spa
ङ्क	ṅka	ढ्य	ḍhya	ध्न्य	dhnya	म्य	mya	स्फ	spha
ङ्क्त	ṅkta	ढ्र	ḍhra	ध्म	dhma	म्र	mra	स्म	sma
ङ्क्त्य	ṅktya	ण्ट	ṇṭa	ध्य	dhya	म्ल	mla	स्म्य	smya
ङ्क्य	ṅkya	ण्ठ	ṇṭha	ध्र	dhra	म्व	mva	स्य	sya
ङ्क्ष	ṅkṣa	ण्ड	ṇḍa	ध्र्य	dhrya	य्य	yya	स्र	sra
ङ्क्ष्व	ṅkṣva	ण्ड्य	ṇḍya	ध्व	dhva	य्व	yva	स्व	sva
ङ्ख	ṅkha	ण्ड्र	ṇḍra	न्त	nta	ल्क	lka	स्स	ssa
ङ्ख्य	ṅkhya	ण्ड्र्य	ṇḍrya	न्त्य	ntya	ल्प	lpa	ह्ण	hṇa
ङ्ग	ṅga	ण्ढ	ṇḍha	न्त्र	ntra	ल्म	lma	ह्न	hna
ङ्ग्य	ṅgya	ण्ण	ṇṇa	न्द	nda	ल्य	lya	ह्म	hma
ङ्घ	ṅgha	ण्म	ṇma	न्द्र	ndra	ल्ल	lla	ह्य	hya
ङ्घ्य	ṅghya	ण्य	ṇya	न्न	nna	ल्व	lva	ह्र	hra
ङ्घ्र	ṅghra	ण्व	ṇva	न्प	npa	ल्ह	lha	ह्ल	hla
ङ्ङ	ṅṅa	त्क	tka	न्प्र	npra	व्न	vna	ह्व	hva
ङ्न	ṅna	त्क्र	tkra	न्म	nma	व्य	vya		
ङ्म	ṅma	त्त	tta	न्य	nya	व्र	vra		
ङ्य	ṅya	त्त्य	ttya	न्र	nra	व्व	vva		
च्च	cca	त्त्र	ttra	न्स	nsa	श्च	śca		

Hebrew and Yiddish

Letter	*Final*	*Name*	*Transliteration*	*Letter*	*Final*	*Name*	*Transliteration*
א		*alef*	’	כּ		*kaf*	**k, kk**
ב		*bet*	**v**	ל		*lamed*	**l, ll**
בּ		*bet*	**b, bb**	מ	ם	*mem*	**m, mm**
ג		*gimel*	**g, gg**	נ	ן	*nun*	**n, nn**
גּ		*gimel*	**g, gg**	ס		*samekh*	**m, mm**
ד		*dalet*	**d, dd**	ע		*ayin*	’
דּ		*dalet*	**d, dd**	פּ	ףּ	*pe*	**p**
ה		*hei*	**h**	פ	ף	*fe*	**f**
הּ		*hei*	**h**	צ	ץ	*tsadi*	**ts**
ו		*vav*	**v, vv**	ק		*qof*	**q**
ז		*zayin*	**z, zz**	ר		*resh*	**r**
הּ		*h̄et*	**h̄**	שׂ		*sin*	**s**
ט		*tet*	**t, tt**	שׁ		*shin*	**sh**
י		*yod*	**y, yy**	ת		*tav*	**p**
כ	ך	*khaf*	**kh**	תּ		*tav*	**p**

Modern Greek

Letter		*Name*	*Transliteration*	*Letter*		*Name*	*Transliteration*
Α	α	alfa	**a**	Ν	ν	ni	**n**
Β	β	vita	**v**	Ξ	ξ	xi	**x**
Γ	γ	gama	**g/y**	Ο	ο	omicron	**o**
Δ	δ	ðelta	**ð**	Π	π	pi	**p**
Ε	ε	epsilon	**e**	Ρ	ρ	ro	**r**
Ζ	ζ	zita	**z**	Σ	σ,ς	sigma	**s**
Η	η	ita	**i**	Τ	τ	taf	**t**
Θ	ϑ	ϑita	**th**	Υ	υ	ipsilon	**i**
Ι	ι	yiota	**i**	Φ	φ	phi	**f**
Κ	ϰ	kapa	**k**	Χ	χ	hi	**h**
Λ	λ	lambða	**l**	Ψ	ψ	psi	**ps**
Μ	μ	mi	**m**	Ω	ω	omega	**o**

Double Consonants

Written	Transliterated	Written	Transliterated
μπ (initial)	**b**	γϰ (medial)	**ng**
μπ (medial)	**mb**	γγ	**ng**
ντ (initial)	**d**	τσ	**ts**
ντ (medial)	**nd**	τζ	**tz**
γϰ (initial)	**g**		

Diphthongs

Written	Transliterated	Written	Transliterated
αι	**ai**	ευ	**ev**
αυ	**av**	ευ	**ef**
αυ	**af**	οι	**oi**
ει	**ei**	ου	**ou**

Notes. — 1. αι is pronounced /ε/, and ει and οι are both pronounced /i/; however, in the transliterations it is the original spelling rather than the pronunciation that is respected. 2. The diphthong αυ is transliterated (and pronounced) /af/ before ϑ, ϰ, ξ, π, σ, τ, φ, χ and ψ; in all other cases it is transliterated (and pronounced) as /av/. 3. The preceding rule also applies to the transliteration of ευ (with respective pronunciations /εf/ and /εv/).

Ottoman Turkish

Letter				*Name*	*Modern*
Isolated	*Initial*	*Medial*	*Final*		*Turkish*
ا			ـا	*elif*	**a, e**
ء				*hemze*	
ب	بـ	ـبـ	ـب	*be*	**b**
پ	پـ	ـپـ	ـپ	*pe*	**p**
ت	تـ	ـتـ	ـت	*te*	**t**
ث	ثـ	ـثـ	ـث	*se*	**s**
ج	جـ	ـجـ	ـج	*cim*	**c**
چ	چـ	ـچـ	ـچ	*çim*	**ç**
ح	حـ	ـحـ	ـح	*ha*	**h**
خ	خـ	ـخـ	ـخ	*hı*	**h**
د			ـد	*dal*	**d**
ذ			ـذ	*zel*	**z**
ر			ـر	*re*	**r**
ز			ـز	*ze*	**z**
ژ	ژ	ژ	ژ	*je*	**j**
س	سـ	ـسـ	ـس	*sin*	**s**
ش	شـ	ـشـ	ـش	*şın*	**ş**
ص	صـ	ـصـ	ـص	*sad*	**s**
ض	ضـ	ـضـ	ـض	*dad*	**d, z**
ط	طـ	ـطـ	ـط	*tı*	**t**
ظ	ظـ	ـظـ	ـظ	*zı*	**z**
ع	عـ	ـعـ	ـع	*ayn*	**', h (or omitted)**
غ	غـ	ـغـ	ـغ	*gayn*	**g, ğ**
ف	فـ	ـفـ	ـف	*fe*	**f**
ق	قـ	ـقـ	ـق	*kaf*	**k**
ك	کـ	ـکـ	ـك	*kef*	**k, g, ğ, n**
گ	گـ	ـگـ	ـگ	*gef*	**g, ğ**
ڭ			ـڭ	*nef, sağir kef*	**n**
ل	لـ	ـلـ	ـل	*lam*	**l**
م	مـ	ـمـ	ـم	*mim*	**m**
ن	نـ	ـنـ	ـن	*nun*	**n**
و			ـو	*(vav)*	**v, o, ö, u, ü**
ه	هـ	ـهـ	ـه	*he*	**h, e, a**
ی	یـ	ـیـ	ـی	*ye*	**y, ı, i**

Persian

Letter				*Name*	*Transliteration*
Isolated	*Initial*	*Medial*	*Final*		
ا		ـا	ـا	(*alef*)	**a**
ب	بـ	ـبـ	ـب	(*be*)	**b**
پ	پـ	ـپـ	ـپ	(*pe*)	**p**
ت	تـ	ـتـ	ـت	(*te*)	**t**
ث	ثـ	ـثـ	ـث	(*se*)	**s**
ج	جـ	ـجـ	ـج	(*ȷīm*)	**j**
چ	چـ	ـچـ	ـچ	(*ce*)	**c**
ح	حـ	ـحـ	ـح	(*he-jimi*)	**h**
خ	خـ	ـخـ	ـخ	(*xe*)	**x**
د			ـد	(*dāl*)	**d**
ذ			ـذ	(*zāl*)	**z**
ر			ـر	(*re*)	**r**
ز			ـز	(*ze*)	**z**
ژ			ـژ	(*ĝe*)	**ĝ**
س	سـ	ـسـ	ـس	(*sin*)	**s**
ش	شـ	ـشـ	ـش	(*šin*)	**š**
ص	صـ	ـصـ	ـص	(*sād*)	**s**
ض	ضـ	ـضـ	ـض	(*zād*)	**z**
ط	طـ	ـطـ	ـط	(*tā*)	**t**
ظ	ظـ	ـظـ	ـظ	(*zā*)	**z**
ع	عـ	ـعـ	ـع	(*ein*)	**‘**
غ	غـ	ـغـ	ـغ	(*qein*)	**q**
ف	فـ	ـفـ	ـف	(*fe*)	**f**
ق	قـ	ـقـ	ـق	(*qāf*)	**q**
ک	کـ	ـکـ	ـک	(*kāf*)	**k**
گ	گـ	ـگـ	ـگ	(*gāf*)	**g**
ل	لـ	ـلـ	ـل	(*lām*)	**l**
م	مـ	ـمـ	ـم	(*mim*)	**m**
ن	نـ	ـنـ	ـن	(*nun*)	**n**
و			ـو	(*vāv*)	**v**
ه	هـ	ـهـ	ـه	(*he-do-cešm*)	**h**
ی	یـ	ـیـ	ـی	(*ye*)	**y**

Notes. — 1. Gemination (doubling) of a consonant is effected by use of the *tašdid*, a w-shaped script placed above the consonant to be doubled.
2. The final *he-do-cešm* (ه) is also used to denote a final *a* (rare) or *e*.

Russian

Letter		Name	Transliteration
А (*А*)	а (*а*)	а (a)	**a**
Б (*Б*)	б (*б*)	бэ (be)	**b**
В (*В*)	в (*в*)	вэ (ve)	**v**
Г (*Г*)	г (*г*)	гэ (ge)	**g**
Д (*Д*)	д (*д*)	дэ (de)	**d**
Е (*Е*)	е (*е*)	е (йэ) (ye)	**(y)e**
Ё (*Ё*)	ё (*ё*)	ё (йо) (yo)	**yo**
Ж (*Ж*)	ж (*ж*)	жэ (zhe)	**zh**
З (*З*)	з (*з*)	зэ (ze)	**z**
И (*И*)	и (*и*)	и (i)	**i**
Й (*Й*)	й (*й*)	й (и краткое) (short i)	**y**
К (*К*)	к (*к*)	ка (ka)	**k**
Л (*Л*)	л (*л*)	эл (el)	**l**
М (*М*)	м (*м*)	эм (em)	**m**
Н (*Н*)	н (*н*)	эн (en)	**n**
О (*О*)	о (*о*)	о (o)	**o**
П (*П*)	п (*п*)	пэ (pe)	**p**
Р (*Р*)	р (*р*)	эр (er)	**r**
С (*С*)	с (*с*)	эс (es)	**s**
Т (*Т*)	т (*т*)	тэ (te)	**t**
У (*У*)	у (*у*)	у (u)	**u**
Ф (*Ф*)	ф (*ф*)	эф (ef)	**f**
Х (*Х*)	х (*х*)	ха (kha)	**kh**
Ц (*Ц*)	ц (*ц*)	цэ (tse)	**ts**
Ч (*Ч*)	ч (*ч*)	чэ (che)	**ch**
Ш (*Ш*)	ш (*ш*)	ша (sha)	**sh**
Щ (*Щ*)	щ (*щ*)	ща (shcha)	**shch**
Ъ (*Ъ*)	ъ (*ъ*)	твёрдый знак (hard sign)	—
Ы (*Ы*)	ы (*ы*)	ы (y)	**y**
Ь (*Ь*)	ь (*ь*)	мягкий знак (soft sign)	**’**
Э (*Э*)	э (*э*)	э (e)	**e**
Ю (*Ю*)	ю (*ю*)	ю (йу) (yu)	**yu**
Я (*Я*)	я (*я*)	я (йа) (ya)	**ya**

Ukrainian

Letter		*Name*	*Transliteration*
А	а	а (a)	**a**
Б	б	бе (be)	**b**
В	в	ве (ve)	**v**
Г	г	ге (he)	**h**
Д	д	де (de)	**d**
Е	е	е (e)	**e**
Є	є	є (ye)	**ye**
Ж	ж	же (zhe)	**zh**
З	з	зе (ze)	**z**
И	и	и (i)	**i**
І	і	і (i)	**ī**
Ї	ї	ї (yi)	**yī**
Й	й	йот (yot)	**y**
К	к	ка (ka)	**k**
Л	л	ел (el)	**l**
М	м	ем (em)	**m**
Н	н	ен (en)	**n**
О	о	о (o)	**o**
П	п	пе (pe)	**p**
Р	р	ер (er)	**r**
С	с	ес (es)	**s**
Т	т	те (te)	**t**
У	у	у (u)	**u**
Ф	ф	еф (ef)	**f**
Х	х	ха (kha)	**kh**
Ц	ц	це (tse)	**ts**
Ч	ч	ча (cha)	**ch**
Ш	ш	ша (sha)	**sh**
Щ	щ	ща (shcha)	**shch**
Ь	ь	м’який знак (soft sign)	**’**
Ю	ю	ю (yu)	**yu**
Я	я	я (ya)	**ya**

Appendix 3

Mercury Data

Observational Parameters [1]

Minimum distance from Earth	77.3×10^6 km
Maximum distance from Earth	221.9×10^6 km
Apparent maximum diameter from Earth	13 arcsec
Apparent minimum diameter from Earth	4.5 arcsec
Maximum visual magnitude	-1.9
Mean distance from Earth at inferior conjunction	91.0×10^6 km
Mean apparent diameter a inferior conjunction	11.0 arcsec

Bulk Parameters [1]

Equatorial radius	2439.7 km
	$0.383 r_\oplus$
Polar radius	2439.7 km
	$0.384 r_\oplus$
Volumetric mean radius	2439.7 km
	$0.383 \langle r_\oplus \rangle$
Oblateness	0
Volume	6.083×10^{10} km^3
	$0.0562 r_\oplus$
Mass	3.302×10^{23} kg
	$0.0553 M_\oplus$
Mean density	5427 kg m^{-3}
	$0.984 \rho_\oplus$
Surface gravity (equator)	3.70 m s^{-2}
	$0.378 g_\oplus$
Surface acceleration (equator)	3.70 m s^{-2}
	$0.378 g_\oplus$
Escape velocity	4.3 km s^{-1}
	$0.384 v_{\mathrm{esc},\oplus}$
GM	0.02203×10^6 km^3 s^{-2}
	$0.0553 (GM)_\oplus$
Albedo	0.068 (Bond)
	0.142 (visual geometric)
Visual magnitude $V(1,0)$	-0.42
Solar irradiance	9,126.6 W m^{-2}
	$6.673 f_\oplus$
Blackbody temperature	440.1 K
Moment of inertia $(I/(MR^2))$	0.33
	$0.998 (I/(MR^)\,)_\oplus$
$J_2 \times 10^{-6}$	60

Note.—The suffix '⊕' denotes 'Earth'.

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2,

Orbital Parameters [1]

Semi-major axis	57 909 100 km
	0.387098 AU
Sidereal orbital period	87.9691 day
	(0.240846 year)
Tropical orbital period	87.968 day
	0.241 year
Perihelion	46 001,200 km
	0.307499 AU
Aphelion	69 816 900 km
	0.466697 AU
Synodic period	115.88 day
Mean orbital velocity	47.87 km s^{-1}
	$1.607\langle v_{\mathrm{orb},\oplus}\rangle$
Maximum orbital velocity	58.98 km s^{-1}
	$1.947 v_{\mathrm{orb\,max},\oplus}$
Minimum orbital velocity	38.86 km s^{-1}
	$1.327 v_{\mathrm{orb\,min},\oplus}$
Inclination of orbital plane	7.00°
Orbital eccentricity	0.2056
	$12.311 e_{\oplus}$
Sidereal rotation period	1407.6 h (58.785 day)
Length of day	4222.6 h (175.942 day)
	(0.5 Mercurian solar day)
Obliquity to orbit	~0°
Spin–orbit resonance	3:2
Satellites	none
Ring systems	none

Note.—The suffix '$\oplus$' denotes 'Earth'.

Mean orbital elements (J2000) [1]

Semimajor axis	0.38709893 AU
Orbital eccentricity	0.20563069
Orbital inclination	7.00487°
Longitude of ascending node	48.33167°
Longitude of perihelion	77.45645°
Mean longitude	252.25084°

Magnetosphere [1]

Field strength at equator	~300 nT
Dipole tilt of rotational axis	169°
Longitude of tilt[a]	285°
Longitude of tilt[b]	115°

[a]From *MESSENGER* flyby I.

[b]From *MESSENGER* flyby III.

Appendix 4

Mercury Transits

The table of transits of Mercury and the formula for calculating local visibility of transits are taken from the public-domain document 'Transits of Mercury', authored by Fred Espinak [1], and are available on NASA/Goddard Space Flight Center's website.[1]

Occurrence of Transits

The calculation of transits of Mercury is explained by McNally [2] and Meeus [3]. At the present time, the nodes of Mercury's orbit fall between the Sun and the Earth in May (descending node) and November (ascending node). If Mercury happens to be close to a node when this happens a transit can occur. About two-thirds of transits take place when Mercury is at its ascending node (in November). Espinak [4] has catalogued 94 transits of Mercury between A.D. 1605 and A.D. 2295. Espinak's catalogue is reproduced here with permission.

Transit Series

Consecutive transits occur at intervals of 3.5, 7, 9.5, 10 or 13 years. A fairly precise pattern of repetition of transits occurs every 46 years (representing 191 orbits of Mercury with an excess of a mere 0.34 days). May transit series last for 414 years, whereas November transit series endure approximately twice as long; hence, there are roughly twice as many November as May transits.

Visibility of Transits

In order to determine whether a transit will be visible from a certain location it is necessary to calculate the local hour angle, altitude and azimuth of the Sun at the time of transit. These quantities are found from the following formulae:

$$h_\odot = 15(\mathrm{GST} + t - \alpha_\odot) + \lambda \tag{1}$$

$$a_\odot = \sin^{-1}(\sin\delta_\odot \sin\phi + \cos\delta_\odot \cos h_\odot \cos\phi) \tag{2}$$

$$A_\odot = \tan^{-1}\{-(\cos\delta_\odot \sin h_\odot)/(\sin\delta_\odot \cos\phi - \cos\delta_\odot \cos h_\odot \sin\phi)\} \tag{3}$$

where

$h_\odot$ = hour angle of the Sun (in degrees)
$a_\odot$ = altitude of the Sun (in degrees)
$A_\odot$ = azimuth of the Sun (in degrees)
GST = Greenwich Sidereal Time at 00:00 UT
t = Universal Time (UT)
$\alpha_\odot$ = right ascension of the Sun (in hours)
$\delta_\odot$ = declination of the Sun (in degrees)
λ = observer's longitude (east +ve, west −ve)
ϕ = observer's latitude (north +ve, south −ve)

[1] http://eclipse.gsfc.nasa.gov/transit/catalog/MercuryCatalog.html

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2,

Date	Transit contact times (UT) t_{I} h:m	t_{II} h:m	$t_{\max}$ h:m	t_{III} h:m	t_{IV} h:m	$r_{\min}$. $''$	$\alpha_{\odot}$ h	$\delta_{\odot}$ deg	GST h	Series
1605 Nov 01	18:43	18:47	20:02	21:18	21:21	855.9	14.471	−14.68	2.739	6
1615 May 03	06:41	06:44	10:09	13:33:	13:36	468.4	2.666	15.61	14.725	5
1618 Nov 04	11:08	11:10	13:42	16:14	16:15	352.8	14.642	−15.49	2.909	4
1628 May 05	14:19	14:23	17:32	20:40	20:44	571.0	2.869	16.52	14.933	3
1631 Nov 07	04:38	04:39	07:20	10:01	10:03	146.4	14.814	−16.27	3.079	2
1644 Nov 09	22:53	22:55	00:57	02:58	03:00	641.1	14.987	−17.02	3.249	1
1651 Nov 03	23:07	23:09	00:52	02:35	02:38	750.7	14.540	−15.01	2.809	6
1661 May 03	13:05	13:08	16:54	20:40	20:43	263.2	2.740	15.94	14.800	5
1664 Nov 04	15:53	15:54	18:32	21:10	21:11	250.4	14.711	−15.81	2.979	4
1674 May 07	21:56	22:01	00:16	02:31	02:37	775.4	2.943	16.84	15.008	3
1677 Nov 07	09:32	09:33	12:11	14:48	14:50	248.7	14.884	−16.58	3.149	2
1690 Nov 10	03:57	03:59	05:43	07:27	07:29	742.1	15.057	−17.32	3.318	1
1697 Nov 03	03:58	03:40	05:42	07:43	07:45	647.1	14.610	−15.33	2.878	6
1707 May 05	19:34	19:37	23:32	03:27	03:30	64.5	2.813	16.27	14.875	5
1710 Nov 06	20:39	20:40	23:22	02:03	02:05	145.2	14.781	−16.12	3.048	4
1723 Nov 09	14:25	14:27	16:59	19:30	19:32	350.6	14.953	−16.87	3.218	2
1736 Nov 11	09:07	09:11	10:30	11:49	11:52	843.0	15.128	−17.59	3.388	1
1740 May 02	21:34	21:42	23:02	00:21	00:29	888.8	2.685	15.68	14.742	7
1743 Nov 05	08:12	08:15	10:30	12:45	12:47	542.4	14.679	−15.65	2.948	6
1753 May 06	02:16	02:19	06:13	10:06	10:09	138.6	2.888	16.59	14.949	5
1756 Nov 07	01:26	01:28	04:10	06:54	06:55	42.6	14.851	−16.42	3.118	4
1769 Nov 09	19:21	19:23	21:46	00:10	00:12	454.0	15.024	−17.17	3.288	2
1776 Nov 02	20:55	21.03	21:36	22:09	22:17	943.8	14.522	−14.91	2.793	8
1782 Nov 12	14.35	14:42	15.16	15:50	15:57	944.6	15.199	−17.88	3.457	1
1786 May 04	02:56	03:01	05:41	08:21	08:26	689.0	2.759	16.02	14.817	7
1789 Nov 05	12:51	12:53	15:19	17:44	17:46	439.9	14.748	−15.96	3.018	6
1799 May 07	09:07	09:10	12:50	16.31	16:34	339.5	2.961	16.90	15.024	5
1802 Nov 09	06:14	06:16	08:58	11:41	11:43	60.9	14.921	−16.73	3.188	4
1815 Nov 12	00:18	00:20	02:33	04:46	04:48	556.1	15.094	−17.45	3.357	2
1822 Nov 05	01:00	01:04	02:25	03:45	03:49	838.8	14.646	−15.50	2.917	8
1832 May 05	09:00	09:04	12:25	15.47	15:50	484.7	2.833	16.34	14.892	7
1835 Nov 07	17.33	17:35	20:08	22:41	22:43	336.4	14.817	−16.27	3.087	6
1845 May 08	16:20	16:24	19:37	22:49	22:53	547.2	3.037	17.21	15.099	5
1848 Nov 09	11:05	11:07	13:48	16:28	16:30	163.0	14.991	−17.02	3.257	4
1861 Nov 12	05:18	05:21	07:19	09:18	09:21	657.9	15.166	−17.74	3.427	2
1868 Nov 05	05:26	05:28	07:14	09:00	09:03	735.1	14.715	−15.81	2.987	8
1878 May 06	15:13	15:16	19:00	22:44	22:47	287.3	2.907	16.66	14.966	7
1881 Nov 08	22:17	22:19	00:57	03:36	03:38	231.8	14.888	−16.58	3.157	6
1891 May 10	23.57	23:57	02:22	04:47	04:47	753.6	3.112	17.52	15.174	5
1894 Nov 10	15:56	15:58	18:35	21:11	21:13	266.2	15.061	−17.31	3.327	4

Date	Transit contact times (UT)					$r_{\min}$.	$\alpha_\odot$	$\delta_\odot$	GST	Series
	t_{I} h:m	t_{II} h:m	$t_{\max}$ h:m	t_{III} h:m	t_{IV} h:m	$''$	h	deg	h	
1907 Nov 14	10:24	10:26	12:07	13:47	13:50	758.6	15.236	−18.01	3.496	2
1914 Nov 07	09:57	09:59	12:03	14.07	14.09	630.7	14.785	−16.12	3.056	8
1924 May 08	21:44	21:47	01:41	05:35	05:38	84.6	2.981	16.97	15.041	7
1927 Nov 10	03:02	03:04	05:46	08:27	08:29	128.7	14.958	−16.87	3.226	6
1937 May 11	08:53	–	08:59	–	09:06	955.5	3.187	17.81	15.248	5
1940 Nov 11	20:49	20:51	23:21	01:52	01:53	368.5	15.132	−17.59	3.396	4
1953 Nov 14	15:37	15:41	16:54	18:07	18:11	861.8	15.308	−18.28	3.566	2
1957 May 06	23:59	00:09	01:14	02:20	02:30	907.3	2.852	16.41	14.909	9
1960 Nov 07	14.34	14.36	16:53	19:10	19:12	527.9	14.855	−16.42	3.126	8
1970 May 09	04:19	04:22	08:16	12:10	12:13	114.1	3.056	17.28	15.115	7
1973 Nov 10	07:47	07:49	10:32	13:16	13:17	26.4	15.028	−17.17	3.296	6
1986 Nov 13	01:43	01:45	04:07	06:29	06:31	470.5	15.203	−17.87	3.466	4
1993 Nov 06	03:06	03:12	03:57	04:41	04:47	926.7	14.753	−15.97	3.025	10
1999 Nov 15	21:15	21:30	21:41	21:52	22:07	963.0	15.379	−18.54	3.635	2
2003 May 07	05:13	05:17	07:52	10:27	10:32	708.3	2.926	16.73	14.983	9
2006 Nov 08	19:12	19:14	21:41	00:08	00:10	422.9	14.925	−16.73	3.196	8
2016 May 09	11:12	11:15	14:57	18:39	18:42	318.5	3.130	17.58	15.190	7
2019 Nov 11	12:35	12:37	15:20	18:02	18:04	75.9	15.098	−17.45	3.366	6
2032 Nov 13	06:41	06:43	08:54	11:05	11:07	572.1	15.274	−18.14	3.535	4
2039 Nov 07	07:17	07:21	08:46	10:12	10:15	822.3	14.822	−16.27	3.095	10
2049 May 07	11:03	11:07	14.24	17:41	17:44	511.8	3.000	17.04	15.058	9
2052 Nov 09	23:53	23:55	02:29	05:04	05:06	318.7	14.996	−17.02	3.265	8
2062 May 10	18:16	18:20	21:36	00:53	00:57	520.5	3.206	17.88	15.265	7
2065 Nov 11	17:24	17:26	20:06	22:46	22:48	180.7	15.170	−17.73	3.435	6
2078 Nov 14	11:42	11:44	13:41	15:37	15:39	674.3	15.345	−18.41	3.605	4
2085 Nov 07	11:42	11:45	13:34	15:24	15:26	718.5	14.893	−16.58	3.165	10
2095 May 08	17:20	17:24	21:05	00:47	00:50	309.8	3.075	17.35	15.133	9
2098 Nov 10	04:35	04.37	07:16	09:56	09:57	214.7	15.066	−17.31	3.335	8
2108 May 12	01:40	01:44	04:16	06:47	06:52	724.7	3.281	18.16	15.340	7
2111 Nov 14	22:15	22:17	00:53	03:29	03:30	283.3	15.241	−18.01	3.505	6
2124 Nov 15	16:49	16:52	18:28	20:04	20:07	778.9	15.418	−18.67	3.674	4
2131 Nov 09	16:14	16:16	18:22	20:29	20:31	614.4	14.962	−16.87	3.234	10
2141 May 10	23:46	23:50	03:43	07:36	07:39	108.1	3.151	17.65	15.207	9
2144 Nov 11	09:18	09:19	12:02	14:44	14:46	112.7	15.137	−17.59	3.404	8
2154 May 13	10:03	10:18	10:58	11:38	11:53	930.6	3.357	18.45	15.414	7
2157 Nov 14	03.08	03:10	05:40	08:09	08:11	386.9	15.313	−18.28	3.574	6
2170 Nov 16	22.05	22:09	23.15	00:22	00:26	880.4	15.489	−18.92	3.744	4
2174 May 08	02:24	02:37	03:26	04:15	04:27	924.4	3.021	17.12	15.076	11
2177 Nov 09	20:48	20:50	23:09	01:28	01:30	509.8	15.033	−17.17	3.304	10
2187 May 11	06.27	06:30	10:24	14:18	14:21	96.0	3.226	17.94	15.282	9
2190 Nov 12	14:03	14:05	16:48	19:32	19:33	9.1	15.207	−17.87	3.474	8

Date	Transit contact times (UT) t_{I} h:m	t_{II} h:m	t_{max} h:m	t_{III} h:m	t_{IV} h:m	r_{min}. $''$	$\alpha_{\odot}$ h	$\delta_{\odot}$ deg	GST h	Series
2203 Nov 16	08:04	08:06	10:27	12:47	12:49	488.6	15.384	−18.54	3.644	6
2210 Nov 09	09:14	09:19	10:13	11:06	11:11	911.0	14.930	−16.73	3.203	12
2220 May 09	07:23	07:27	09:56	12:25	12:30	728.5	3.095	17.41	15.150	11
2223 Nov 12	01:25	01:27	03:55	06:24	06:26	406.5	15.103	−17.45	3.373	10
2233 May 12	13:13	13:16	16:59	20:43	20:46	296.2	3.301	18.23	15.357	9
2236 Nov 13	18:50	18:52	21:35	00:17	00:19	95.4	15.279	−18.14	3.543	8
2249 Nov 16	13:02	13:04	15:12	17:21	17:23	591.6	15.456	−18.80	3.713	6
2256 Nov 09	13:26	13:29	14:59	16:29	16:32	807.4	15.000	−17.02	3.273	12
2266 May 10	13:16	13:20	16:34	19:47	19:51	529.7	3.170	17.71	15.225	11
2269 Nov 12	06:04	06:06	08:42	11:17	11:19	302.5	15.175	−17.73	3.443	10
2279 May 13	20:14	20:18	23:38	02:57	03:01	499.5	3.376	18.50	15.431	9
2282 Nov 15	23:41	23:41	02:22	05:02	05:02	197.9	15.350	−18.41	3.613	8
2295 Nov 17	18:03	18:06	19:59	21:52	21:54	694.6	15.528	−19.04	3.783	6

Key to Table of Mercury Transits

Column	Heading	Explanation
1	Date	Gregorian calendar date
2	t_{I}	UT of Contact I: disc of Mercury externally tangent to the limb of the Sun (beginning of ‘ingress’)
3	t_{II}	UT of Contact II: disc of Mercury internally tangent to the limb of the Sun (end of ‘ingress’)
4	t_{max}	UT of Greatest Transit: instant of closest approach by Mercury to the centre of the solar disc (as seen geocentrically)
5	t_{III}	UT of Contact III: Mercury again internally tangent to the limb of the Sun (beginning of ‘egress’)
6	t_{IV}	UT of Contact IV: Mercury’s disc externally tangent to the limb of the Sun (end of ‘egress’)
7	r_{min}	Minimum angular separation (in seconds of arc) between the centres of the discs of Mercury and the Sun (at the moment of greatest transit)
8	$\alpha_{\odot}$	Geocentric right ascension (in hours) of the Sun at greatest transit
9	$\delta_{\odot}$	Geocentric declination (in degrees) of the Sun at greatest transit
10	GST	Greenwich Sidereal Time at 00:00 UT
11	Series	The number of the transit series (see p. 287)

Appendix 5

Mercury Timeline

Date	Event
	Pre-telescopic Era
~1150 B.C.	Assyrian *mul.apin* tablet mentions observations of Mercury [1,2]
~1150 B.C.	Egyptians recognize that morning and evening apparitions of Mercury are the same body [3]
n.d.	Chaldeans recognize that morning and evening apparitions of Mercury are the same body [4]
n.d.	Pythagoreans claim that Mercury moves round the Sun [5]
~550 B.C.	Pythagoras or Parmenides recognizes that morning and evening apparitions of Mercury are the same body [6]
~ 380 B.C.	Plato the first to note the yellowish colour of Mercury [7]
265 Nov 15 B.C.	First recorded observation of Mercury (by Dionysios or Timocharis): morning, $\lambda_{\mathrm{Mer}} = 213°;20$, $\lambda_{\odot} = 230°;50$ [8]
262 Feb 12 B.C.	Morning observation of Mercury by Dionysios or Timocharis: $\lambda_{\mathrm{Mer}} = 292°;20$, $\lambda_{\odot} = 318°;10$, max. elong. $= 25°;50$ [9].
262 Apr 25 B.C.	Evening observation of Mercury by Dionysios or Timocharis: $\lambda_{\mathrm{Mer}} = 53°;40$, $\lambda_{\odot} = 29°;30$, max. elong. $= 24°;10$ [10].
262 Aug 23	Evening observation of Mercury by Dionysios or Timocharis: $\lambda_{\mathrm{Mer}} = 169°;30$, $\lambda_{\odot} = 147°;50$, max. elong. $= 21°;40$ [11].
257 May 28 B.C.	Evening observation of Mercury by Dionysios or Timocharis: $\lambda_{\mathrm{Mer}} = 89°;20$, $\lambda_{\odot} = 62°;50$, max. elong. $= 26°;30$ [12].
245 Nov 19 B.C.	Babylonian morning observation of Mercury: $\lambda_{\mathrm{Mer}} = 212°;20$, $\lambda_{\odot} = 234°;50$, max. elong. $= 22°;30$ [13].
237 Oct 30 B.C.	Babylonian morning observation of Mercury: $\lambda_{\mathrm{Mer}} = 194°;10$, $\lambda_{\odot} = 215°;10$, max. elong. $= 21°$ [14].
146 B.C.	Cicero describes Mercury and Venus as ‘accompanying’ the Sun [15]
A.D. 31–27	Marcus Vitruvius Pollio claims that Mercury moves ‘round the Sun as a centre’ [16]
A.D. 130 Jul 4	Evening observation of Mercury by Theon of Smyrna: $\lambda_{\mathrm{Mer}} = 126°;20$, $\lambda_{\odot} = 100°;5$, max. elong. $= 26°;15$ [17]

T.J. Mahoney, *Mercury*, DOI 10.1007/978-1-4614-7951-2,

Date	Event
	Pre-telescopic Era (continued)
A.D. 132 Feb 2	Evening observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 331°,\ \lambda_{\odot} = 309°;45$, max. elong. $= 21°;15$ [18].
A.D. 134 Jun 4	Morning observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 48°;45,\ \lambda_{\odot} = 70°$, max. elong. $= 21°;15$ [19].
A.D. 134 Oct 3	Morning observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 170°;12,\ \lambda_{\odot} = 189°;15$, max. elong. $= 19°;3$ [20].
A.D. 135 Apr 5	Evening observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 34°;20,\ \lambda_{\odot} = 11°;5$, max. elong. $= 23°;15$ [21].
A.D. 138 Jun 4	Evening observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 97°,\ \lambda_{\odot} = 70°;30$, max. elong. $= 26°;30$ [22].
A.D. 139 May 17	Evening observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 77°;30,\ \lambda_{\odot} = 52°;34$ [23]
A.D. 139 July 5	Morning observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 80°;5,\ \lambda_{\odot} = 100°;20$, max. elong. $= 20°;15$ [24].
∼ A.D. 140	Theon of Smyrna claims that Mercury and Venus ‘turn round the sun’ [25]
A.D. 141 Feb 2	Morning observation of Mercury by Ptolemy: $\lambda_{\text{Mer}} = 283°;30,\ \lambda_{\odot} = 310°;0$, max. elong. $= 26°;30$ [26].
∼A.D. 150	Ptolemy completes the *Almagest* (μαθηματικὴ σύνταξις), in which all the planets circle the Earth. Ptolemy’s elements for Mercury’s orbit: $R = 60^{\text{p}}$, $r = 22^{\text{p}};30$, $e = 3^{\text{p}};00$, $3e > \lvert\mathbf{e}\rvert > e$, $\lambda_{\text{aph}} = 190°$, $\lambda_{\Pi_1} = 70°$, $\lambda_{\Pi_2} = 310°$ (two perigees) [27].
A.D. 362 Dec	Julian the Apostate claims that the planets ‘round about him (the Sun), as though he were their king, lead on their dance, at appointed distances from him.’ [28]
A.D. 410–429	Martianus Capella claims that Mercury and Venus move round the Sun [29]
A.D. 12th c.	Alpatregius explained the apparent absence of transits of Mercury and as being due to the self-luminosity of these planets, rendering such transits invisible [30]
A.D. 1543	Copernicus publishes *De revolutionibus obrium coelestium*, in which he claims that the planets move round the Sun [31]
	Telescopic Era
1629	Kepler makes first successful prediction of a Mercury transit [32]

Date	Event
	Telescopic Era (continued)
1631 Nov 7	Gassendi observes Kepler's predicted transit of Mercury [33]
1639 May 23	Astronomer, mathematician and Jesuit priest Giovanni Battista Zupi(1590–1650) makes the first observations of the phases of Mercury [34]
1644 Nov 22	Johannes Hevelius (1611–1687)confirms the phases of Mercury [35]
1677	Gallet d'Avignon notes Mercury's oval form near the Sun's limb during (the 'black drop') [36]
1707 May 5	Flamsteed's assistant sees 'a mist or dense atmosphere' surrounding the black disc of Mercury during transit across the Sun [37]
1782	Wallot concludes that Mercury has an atmosphere [38]
1764	La Lande explains black drop as due to irradiation [39]
1792	Schröter reports a dense atmosphere on Mercury [40]
1799	Schröter and Harding find dark ring around Mercury during transit and deduce the presence of a thick Mercurian atmosphere [41]
1800–1801	Schröter notes shortened dichotomy of Venus [42]
	Schröter deduces a rotational period for Mercury of 24 h 5 min 30 s [43]
	Schröter reports a mountain on Mercury that is 1/126 of the planet's radius in height [44]
1832	Simms detected a ring around Mercury during transit [45]
	Bessel deduces 24 h 00 min 53 s rotation period and axial inclination of 70° from surface markings [46]
	Bessel attributes 'black drop' to irradiation [47]
1848	Dawes attributes 'black drop' to blurring caused by unsteadiness of Earth's atmosphere [48]
1865 (?)	Kirkwood deduces theoretically that Mercury's rotational period is tidally locked with its orbital period [49]
1867	C. L. Prince reports a bright spot on the surface of Mercury [50]
1870	Birmingham reports white spots [51]
1874	van de Sande Bakhuysen interprets 'black drop' phenomenon in terms of diffraction [52]

Date	Event
	Telescopic Era (continued)
1871	Vogel deduces the presence of a terrestrial-type atmosphere on Mercury from spectroscopic observations [53]
	Huggins deduces the presence of water vapour in Mercury's 'atmosphere' [54]
1877 March 22	The date for which Leverrier predicts the transit of the supposed intra-Mercurial planet Vulcan across the face of the Sun. No such transit is observed [55].
1881–1889	Schiaparelli's Mercury observing campaign; he deduces a rotational period equal to the orbital period (87.969256 day); he maps Mercury [56]
1882	Denning gives first reliable report of surface markings on Mercury and derives a rotation period of 25 h [57]
1889	Schiaparelli thought he had detected a dense atmosphere on Mercury [58]
1893	Müller notes the similarity of the light-curves of Mercury and the Moon indicating a similarity in their surfaces [59]
1896	Lowell charts Mercury and maps an illusory network of canals [60,61]
1900 Aug 31	Barnard reports lunar-like dark patches on surface of Mercury [62]
1912	Danjon and Couder independently confirm the 88-day rotation period of Mercury from telescopic observations [63]
1915	Einstein predicts 43 arcsec/century advance in perihelion of Mercury as a test of the General Theory of Relativity [64].
1929	Lyot finds that polarization curves for Mercury and Moon are similar and deduces the presence of volcanic ash on Mercury [65]
1932	Adams & Dunham find no difference between the spectra of Mercury and the Sun [66]
1933	Slipher detects no difference between the spectra of Mercury and the Sun [67]
1934	Antoniadi's *La Planète Mercure* published in Paris by Gauthier–Villars [68]
1965	58.6 day sidereal rotation period of Mercury measured by radar [69]
	Shapiro uses delay in radar signal to Mercury at superior conjunction as a test of the General Theory of Relativity [70]
	Colombo explains the cause of the 2:3 spin–orbital resonance of Mercury [71]

Date	Event
	Space Exploration Era
1973 Nov 3	*Mariner 10* launched from NASA's Kennedy Space Center [72]
1974 Mar 29	First Mercury flyby of *Mariner 10* (nearest approach 703 km) [73]
1974 Sep 21	Second Mercury flyby of *Mariner 10* (nearest approach: 48 069 km) [74]
1975 Mar 16	Third Mercury flyby of *Mariner 10* (nearest approach: 327 km) [75]
	Mariner 10 reveals craters and large, lava-filled basins on Mercury's surface [76]
1976	*Mariner 10* team discovers Mercury's magnetic field (with a surface strength about 1 % that of the Earth) and maps the planet's magnetosphere [77]
1978	NASA publishes the first detailed atlas of Mercury, based on *Mariner 10* observations and showing numerous craters and plains [78]
2004 Aug 3	*MESSENGER* probe launched From Cape Canaveral Air Force Station at 02:15:56 EDT [79]
2008 Jan 14	*MESSENGER*'s first flyby of Mercury at 19:04:39 UTC (closest approach: 200 km) [80]
2008 Jan 30	*MESSENGER* maps 50 % of Mercury's surface, m21 % of which was unseen by *Mariner 10*, thus bringing the total percentage of the mapped surface to 66 % [81]
	MESENGER discovers long, steep scarps (rupēs) on Mercury [82]
	MESENGER discovers a system of over 100 troughs (Pantheon Fossae) radiating from the centre of the Caloris basin [83]
	MESSENGER find that Mercury's magnetic field and magnetosphere have evolved in structure since *Mariner 10* [84]
	MESSENGER studies the mineral structure of Mercury's surface and detects sodium, calcium and hydrogen in the planet's exosphere [85]

Date	Event
	Space Exploration Era (continued)
2008 Oct 6	*MESSENGER*'s second flyby of Mercury [86]
2008 Oct 29	*MESSENGER* maps a further 24 % of the Mercurian surface (hitherto unseen), bringing the total percentage of surface mapped to 90 % [87]
	MESSENGER provides the first ever global view of the internal magnetic field of Mercury, the magnetic dipole being closely aligned with the planet's rotational axis [88]
	MESSENGER measures the extended tail of Mercury's exosphere [89]
	MESSENGER finds no hemispheric differences in the topopgraphy of Mercury (unlike Mars and the Moon, where such hemispherical differences are seen) [90]
2009 Sep 29	*MESSENGER* probe's third flyby of Mercury [91]
	MESSENGER maps a further hitherto unseen 6 % of the Mercurian surface (making 96 % of the total surface mapped, leaving only the polar regions still unobserved [92]
	MESSENGER measures 10–20 times less intensity of the neutral sodium tail than in the previous two flybys [93]
	MESSENGER find iron and titanium abundances in the Mercurian crust in similar amounts to those some lunar basalts [94]
2011 Mar 18	*MESSENGER* inserted into Mercury orbit at 00:45 UTC [95]

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[81] *Ibid.*
[82] *Ibid.*
[83] *Ibid.*
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[85] messenger.jhuapl.edu/mer_flyby2.html
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[87] *Ibid.*
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[92] messenger.jhuapl.edu/news_room/press_release110309.html
[93] *Ibid.*
[94] *Ibid.*
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